



ISTIC
INTERNATIONAL SCIENCE, TECHNOLOGY AND
INNOVATION CENTRE FOR SOUTH-SOUTH
COOPERATION UNDER THE AUSPICES OF UNESCO

Training Workshop on AI Education

18 – 21 November 2024 | Genting Highland, Pahang



Lead Master Trainers

BACKGROUND

Training Workshop on AI Education: Empowering Tomorrow's Minds with AI Education

In our fast-paced world, where Artificial Intelligence (AI) is revolutionizing how we work, communicate, and learn, education systems face a pivotal challenge: to adapt and integrate AI into their curricula. The introduction of AI Education for Upper Primary/Lower Secondary students emerges as a vital solution, bridging the gap between traditional teaching methods and the demands of the 21st-century workforce.

Imagine a classroom where students aren't just passive recipients of knowledge but active creators and problem-solvers, equipped to navigate and shape a world driven by AI. This vision highlights a crucial need for educational transformation. Traditional methods often fall short in preparing students for the profound changes brought by AI, a central force in the Fourth Industrial Revolution. This revolution demands more than just an understanding of technology; it requires a shift towards fostering creativity, critical thinking, and ethical considerations.

United Nations and UNESCO emphasize the necessity of integrating emerging technologies into education. UNESCO's policy on Education for Sustainable Development asserts that "education must empower learners to make informed decisions and take responsible actions for environmental integrity, economic viability, and a just society" (UNESCO, 2019). Meanwhile, UN Sustainable Development Goal 4 calls for quality education that equips students with essential future-ready skills, including digital literacy and critical thinking.

To meet these evolving needs, the AI Education programme for Upper Primary/Lower Secondary students offers a comprehensive framework, blending traditional learning with Inquiry-Based Science Education (IBSE). This approach transforms the classroom into a dynamic environment where students explore, question, and solve real-world problems, aligning with the modern emphasis on experiential and inquiry-based learning.

The Upper Primary/Lower Secondary stages are pivotal for students' growth, shaping their cognitive, social, and skill development. Yet, many current curricula overlook the profound societal impacts of AI. To address this, we must move beyond rote learning, encouraging a shift towards critical thinking, creativity, and innovation. This evolution will prepare students not just to consume technology but to actively shape and contribute to an AI-driven world.

Incorporating IBSE into AI Education is key to this transformation. IBSE promotes curiosity and exploration, allowing students to delve into AI principles through hands-on, unplugged activities that do not require computers. This method fosters a deeper understanding of foundational skills in algorithmic thinking and problem-solving, empowering students through active learning.

Recognizing the significance of this initiative, ISTIC is dedicated to bringing together all stakeholders to ensure that developing countries are not left behind in the quest for educational excellence and technological advancement. With the right resources and knowledge, these nations can bridge technological gaps, drive economic growth, create job opportunities, and advance progress on a global scale.

Successful implementation of AI Education for Upper Primary/Lower Secondary requires collaboration among various stakeholders, including government (especially Ministry of Education), educators, policymakers, industry experts, and parents. By working together, we can create a comprehensive and adaptive curriculum that meets the needs of students and aligns with the demands of the AI-driven future.

Objectives:

The primary objective of AI Education is to empower students with a holistic understanding of AI, its principles, and its applications. This initiative aims to:

1. **Develop Computational Thinking:** Through unplugged activities and coding exercises, students will be introduced to programming, algorithmic thinking, and problem-solving, building the computational skills necessary to understand AI systems.
2. **Cultivate Ethical AI Awareness:** By engaging in inquiry-based discussions and scenarios, students will explore the ethical dimensions of AI, fostering critical thinking about responsible AI use and decision-making.
3. **Encourage Project-Based Learning:** With hands-on, inquiry-driven projects, students will collaborate, design, and create AI-related solutions, enhancing their creativity, teamwork, and innovation skills.
4. **Prepare for Future Careers:** By aligning AI education with emerging industry needs, the programme will equip students with foundational skills in AI, positioning them for future careers and contributions in a rapidly evolving digital economy.

Four-pronged approach AI Education:

1. **Conceptual Scenarios:** Students are introduced to core computer science concepts and explore their relationships with the six components of information systems: hardware, software, data, people, procedures, and networks. Through practical examples, they understand how algorithms, programming languages, data management, and machine operations interact and contribute to the field of Artificial Intelligence. This approach helps students see how abstract concepts like algorithms and languages translate into real-world applications in AI, illustrating the connection between theoretical knowledge and practical technology.
2. **Unplugged Activities:** Without the need for technology, students will engage in hands-on activities that develop computational thinking and logic. Through games and collaborative exercises, they will explore algorithms, pattern recognition, and systems thinking skills that underpin AI and computer science.
3. **Coding Activities:** Moving from theory to practice, students will participate in beginner-level programming exercises, coding simple AI-based systems. These activities introduce foundational concepts such as machine learning, data processing, and decision-making algorithms in an accessible way.
4. **Cyber-Physical Project Activities:** Finally, students will apply their knowledge in project-based learning that involves creating AI-driven systems linked to the physical world. From robotics to sensors and data collection, these projects emphasize creativity and collaboration, enabling students to see AI's potential in real-world problem-solving.

OBJECTIVES OF LMT WORKSHOP:

1. Gather and Discuss AI Educational Resources
This workshop aims to collect and review AI educational materials from diverse sources worldwide. Participants will engage in discussions to evaluate the quality and relevance of these resources for integration into the Malaysian education system.
2. Align Module Selection with National and Future Curricula
A key focus of the workshop is to ensure that the selected AI education modules are aligned with the National Curriculum (KSSR/KSSM) and the Future Curriculum. This alignment is crucial for the seamless incorporation of AI topics into existing and future educational frameworks.
3. Advance AI Education Initiatives
The workshop will also drive forward AI education initiatives by developing a set of AI Education modules. These modules are designed for practical use in workshops and classroom activities, empowering educators to deliver AI lessons effectively.

EXPECTED OUTCOMES FROM LMT WORKSHOP:

1. Development of AI Education Modules
A comprehensive set of AI education modules tailored for specific target audiences, ready for implementation in classrooms and workshops.
2. Digital Publication of AI Education Modules
A digital publication compiling curated AI modules, offering educators and trainers accessible, high-quality, turn-key resources for teaching and learning AI at the targeted education level.
3. Guidance for Future Curriculum and Workshop Trainers
A strategic roadmap for integrating AI into future curricula and preparing a new generation of workshop trainers to effectively deliver AI education.

DATE & VENUE

Date : 18 – 21 November 2024

Venue: Institut Aminudin Baki, Genting Highland

CONTACT INFORMATION

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TENTATIVE PROGRAMME

18 NOVEMBER 2024 (MONDAY)	
0800 – 1400	Travel to the Venue
1400 – 1430	Arrival and Registration
1430 – 1500	Programme and Project Briefing – Azim Noor
1500 – 1530	Introduction to AI Education - Dato' Dr Sharifah Maminunah Syed Zin
1530 – 1600	AI and Machine Learning Fundamentals – <i>AP Dr Maslin Masrom</i>
1600 – 1630	Tea Break
1630 – 1900	Sharing session on AI AI Education and AI in Education in Malaysia Future Curriculum – <i>Puan Zaibunnisa, CDD, MOE</i>
1900	<i>Dinner @ Inapan Bestari</i>
19 NOVEMBER 2024 (TUESDAY)	
0800 – 0830	Breakfast @ Inapan Bestari
0830 – 1030	<i>AI Education and IBSE (Inquiry-Based Science Education)</i> - Dato' Dr Sharifah Maimunah Syed Zin
1030 – 1100	Coffee Break @ Anjung Selera
1100 - 1215	Brainstorming on Concepts, Unplugged, Coding and Cyber-Physical (Group activities)
1215 – 1300	<i>Conceptual Scenario – Computer Science and AI</i> - Azim Noor
1300 – 1430	Lunch @ Anjung Selera
1430 – 1630	<i>Unplugged Activities (I) - Clustering</i>
1630 – 1700	Tea Break @ Anjung Selera
1700 – 1900	<i>Unplugged Activities (II) – Classification</i>
1900	<i>Dinner @ Inapan Bestari</i>
20 NOVEMBER 2024 (WEDNESDAY)	
0800 – 0830	Breakfast @ Inapan Bestari
0830 – 1030	<i>Unplugged Activities (III) - Regression</i>
1030 – 1100	Coffee Break @ Anjung Selera
1100 – 1200	<i>Unplugged Activities (IV)</i>
1200 – 1300	<i>Cyber-Physical Project-Based Learning Activities (I) (Introduction)</i>
1300 – 1430	Lunch @ Anjung Selera
1430 – 1630	<i>Cyber-Physical Project-Based Learning Activities (II) – WIO</i>
1630 – 1700	Tea Break @ Anjung Selera
1700 – 1900	<i>Cyber-Physical Project-Based Learning Activities (III) – WIO – data analytics</i>
1900	<i>Dinner @ Inapan Bestari</i>
21 NOVEMBER 2024 (THURSDAY)	
0800 – 0830	Breakfast @ Inapan Bestari
0830 – 1030	<i>Coding Activities (I) – Pattern recognition</i>
1030 – 1100	Coffee Break @ Anjung Selera
1100 – 1200	<i>Coding Activities (II) – Recognition of the object</i>
1200 – 1300	<i>Wrap-Up - Way Forward of AI Education</i> <i>(future workshop discussion and modules publication)</i>
1300	Lunch and End of Workshop
1400	Departure

LEAD MASTER TRAINERS:

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ORGANISER

INTERNATIONAL SCIENCE, TECHNOLOGY AND INNOVATION CENTRE (ISTIC)

The creation of the International Science, Technology and Innovation Centre for South-South Cooperation under the auspices of UNESCO (ISTIC) is a follow up of the Doha



Plan of Action which has been adopted by the head of States and Government of the Group of 77 and China, during the meeting in Doha, Qatar, from 12-16 June 2005 on the occasion of the Second South Summit of the Group of 77. The Summit urged UNESCO to develop and implement a programme for South-South Cooperation in Science and Technology with the objective of facilitating the integration of a developmental approach into national science, technology and innovation policies, capacity building in science and technology through providing policy advice and exchange of experience and best practices, and creating a problem solving network of Centres of Excellence in developing countries as well as supporting the exchange of students, researchers, scientists and technologists among developing countries. ISTIC will act as an international platform offering sustainable programmes and services in producing holistic talents towards institutional excellence and augmenting sustainable development for South-South Cooperation. Details of ISTIC are available at www.istic-unesco.org

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