

## MEDIA RELEASE

**EMBARGOED TILL 10.30 AM ON 24 SEPTEMBER 2024**

### **Global Education Leaders Converge at SP's International Learning Festival in Advancing Teaching and Learning with Generative AI and Sustainability Focus**

**Singapore, 24 September 2024** – In celebration of Singapore Polytechnic's (SP) 70<sup>th</sup> anniversary, SP today hosted the International Learning Festival (ILF), **uniting nearly 800 education leaders and practitioners from more than 147 Institutes of Higher Learning (IHLs) worldwide** to celebrate achievements and collaborate on advancing teaching and learning practices in Generative Artificial Intelligence (AI) and Sustainability in Education. The ILF established SP as a leader in contributions to the local and international teaching and learning landscape.

The event was graced by Guest-of-Honour, Minister of State for Education Ms Gan Siow Huang, who underscored the vital role that polytechnics play in shaping Singapore's educational landscape and outlined how Polytechnic-ITE (POLITE) can continue to evolve and significantly contribute to this ongoing advancement of this landscape.

SP's ILF brought together a diverse group of education experts, including International Symposium for Advances in Technology Education (ISATE) representatives, Conceive-Design-Implement-Operate (CDIO) leaders, Learning Express (LeX) delegates, and POLITE staff, creating a unique platform for sharing best practices and pedagogical innovations:

- Dr Isao Taniguchi: President of the National Institute of Technology, Japan
- Dr Ruth Graham: A leading expert in education and technology-driven entrepreneurship
- Prof Kristina Edström: A pioneer in CDIO education and editor-in-chief of the European Journal of Engineering Education
- Dr Ong Yew Soon: A renowned AI scientist and educator
- Assoc Prof Eric Chua: A leading expert in learning environments and self-directed learning

A list of keynotes and institutional speakers and their topics is found in **Appendix A**.

#### **Key highlights of ILF 2024:**

The ILF 2024 comprises the following key events:

##### **1. ISATE: Fostering Technological Advancement in Education**

The ISATE convened **over two hundred participants from local polytechnics and overseas institutions in Japan, Hong Kong, and Finland** to exchange best practices in leveraging technology to improve student learning.

For more details on the paper presentations and roundtable topics at ISATE, you may visit <https://isate2024.sp.edu.sg/programme/>.

##### **2. CDIO: Driving Innovation in Engineering Education**

As a co-director for the CDIO International Council and a regional co-lead for Asia, SP hosted the 2024 CDIO International Working Meeting, marking the polytechnic's 20th anniversary of CDIO.

Since pioneering the CDIO Framework in 2004, SP has transformed engineering education, fostering innovation and social responsibility.

The SP-CDIO Centre, established in 2022, spearheads the use of the framework to drive curricular improvement and collaborate globally to address educational challenges in a VUCA (“Volatile”, “Uncertain”, “Complex”, and “Ambiguous”) world.

The following examples highlight CDIO’s applications in SP:

- a. The CDIO Framework is employed to cultivate students' key competencies in addressing complex sustainability challenges by seamlessly integrating diverse learning approaches from the Engineering and Common Core Curriculum (CCC). By merging emerging domain-specific knowledge and technical skills with essential human and interpersonal skills, students are progressively equipped to collaborate effectively in multi-disciplinary teams, empowering them to tackle the world's most intricate sustainability issues.
- b. Beyond engineering, architecture students apply this approach, from conceptualisation to implementation, combined with advanced digital tools. This integration offers them an immersive learning experience in sustainable design, deepening their understanding of how climate-responsive buildings contribute to sustainability goals.

### 3. LeX: Empowering Students and Communities through Global Collaboration

The LeX Conference commemorated its 10<sup>th</sup> anniversary, celebrating the achievements of student projects that have positively impacted over 200 communities across 10 countries. **The event brings together 130 top leaders, senior management, and specialists from 34 IHLs in ASEAN countries and India to share LeX successes and explore new collaboration opportunities.** By aiming to engage 1,200 students in LeX by 2025, SP seeks to expand its global footprint and impact while fostering sustainability.

In a series of pioneering initiatives, Singapore Polytechnic (SP) has forged strategic partnerships with institutes of higher learning in Indonesia to drive technological innovation and sustainable solutions to benefit the local community using Design Thinking.

- a. SP, in collaboration with Universitas Muhammadiyah Yogyakarta (UMY), Indonesia, has spearheaded a project to enhance goat farming practices in Srunggo village. The team developed advanced tech-based solutions to automate the separation of solid goat waste, streamlining the process and resulting in a cleaner farm environment. The separated manure is also converted into compost and will be sold to horticulture and fruit farmers in the surrounding villages, creating a sustainable cycle that benefits the local community.
- b. To tackle environmental challenges, another SP team partnered with Universitas Muhammadiyah Yogyakarta (UMY), Indonesia, to convert plastic waste into eco-bricks as reusable building blocks in Kalidadap, Yogyakarta. This transformative project significantly prevents plastic waste burning and pollution, redefining sustainable construction in Yogyakarta by repurposing waste into valuable, eco-friendly materials.
- c. To reduce agricultural wastage, SP, in collaboration with Institut Teknologi Bandung (ITB), Indonesia, has spearheaded an initiative to identify and develop product solutions using aromatic ginger (kencur) cultivated in abundance in rural Jinkang village, Sumedang Regency, West Java. This pioneering effort paves the way for the creation of novel

consumer care and food products, allowing the villagers to achieve a more sustainable income than selling raw produce. By capitalising on the region's abundant natural resources, these product innovations enhance consumer experiences, expand market offerings, elevate income levels, and significantly reduce agricultural wastage.

#### **4. Gen AI Exhibition for Teaching & Learning**

The Gen AI Exhibition, hosted on 25 September, will highlight achievements and innovations in Generative AI by an international community of educators spanning diverse disciplines, domains, and educational levels. This event will provide a unique opportunity for the global community to exchange insights, learn from successes and challenges, and collaboratively enhance teaching and learning practices worldwide.

Highlights of the exhibition being displayed will include creative uses of Gen AI, for example:

- a. In a recent study by Singapore Polytechnic, a team explored the effectiveness of the Generative AI application 'AskWhat, Cher?' and found it significantly enhanced students' self-directed learning. The app utilises chatbots and exit polls, prompting students to reflect on what they have learned at the end of each lesson. The AI then analyses these responses to assess whether desired learning outcomes are met and to identify potential learning gaps. Additionally, students use the chatbots for revision and fact-checking, enhancing engagement and motivation within students and effectively supporting flipped learning pedagogies.
- b. In a study by Wakayama College at the National Institute of Technology, Japan, researchers investigated the effectiveness of an AI-powered English application designed to improve students' writing skills. The study benchmarked students' work against the Test of English for International Communication (TOEIC) standards, evaluating the application's ability to enhance English language proficiency for non-native speakers.

For details about these events, please refer to **Appendix B**.

Mr Soh Wai Wah, Principal and CEO of SP, said, "The ILF 2024 showcases SP's dedication to innovative teaching and collaborative learning. We aim to enhance teaching practices and student learning through global partnerships and explore Generative AI and Sustainability in Education. Delegates will share insights at conference presentations and the Generative AI exhibition. We will also discuss advancing the "Conceive-Design-Implement-Operate" framework and strengthening collaborations amongst ASEAN countries through the SP LeX Programme. SP remains committed to fostering innovation and partnerships in education."

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**Encl:**

Appendix A – Introduction to Keynote and Institutional Speakers

Appendix B – Introduction of SP ILF 2024 partners

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### **About Singapore Polytechnic and its 70<sup>th</sup> Anniversary**

Established in 1954, Singapore Polytechnic (SP) has been a trailblazer in Singapore's educational landscape. Today, it has 10 schools that offer 30 full-time diploma courses and four common entry programmes for more than 12,499 students. The institution champions innovation in lifelong learning, pedagogy, digitalisation, sustainability, and industry engagement.

In 2015, SP incorporated Continuing Education and Training (CET) in its education model. Since then, SP played an integral role in enterprise transformation, workforce upskilling and reskilling for the future economy. In 2022, it partnered with various institutions to introduce a micro-credentials programme leading to a degree from the Singapore Institute of Technology. Embracing new pedagogical innovations, SP pioneered flipped learning in 2015 and is at the forefront of using Analytics in Education.

Committed to sustainability, SP integrates eco-conscious practices into its curriculum and operations. It aims to develop a net-zero sustainability roadmap and collaborate with industries for innovative, sustainable solutions. The curriculum now includes essential sustainability modules, engaging students in at least one sustainability innovation project.

SP is dedicated to making a difference through education. Our humanity-centred programmes provide high-quality education for societal projects, aiming to develop leaders who will positively impact the global community.

By ensuring our curriculum is just in time with industry developments, we can offer a solution-driven internship programme to our industry partners. This steers our students to be life-ready, work ready, world-ready, and be of service to industry and society. Our over 235,000 graduates include successful entrepreneurs, top executives in multi-national and public-listed corporations, industry leaders and professionals across various industries, and leaders in government.

In 2024, SP celebrates its 70th anniversary, uniting stakeholders through various celebratory events and activities. For more information, please visit [www.sp.edu.sg/sp70](http://www.sp.edu.sg/sp70) or connect on social media platforms: Facebook and YouTube @SingaporePolytechnic and Instagram and TikTok at @SingaporePoly.

## APPENDIX A

## Introduction to Keynote and Institutional Speakers

<u>Speaker</u>	<u>Focus area</u>
Opening speech on behalf of ISATE: <b>Dr Isao Taniguchi</b> <ul style="list-style-type: none"> <li>President of the National Institute of Technology (KOSEN), Japan</li> </ul>	Engineers are social doctors whose role is beyond providing technical expertise.
Keynote 1: <b>Dr Ruth Graham</b> <ul style="list-style-type: none"> <li>Regular international speaker on the challenges and opportunities for change in both engineering education and technology-driven entrepreneurship</li> <li>Author of the commissioned report by MIT on outstanding Engineering Education Providers</li> </ul> <a href="https://www.rhgraham.org/">https://www.rhgraham.org/</a>	A global analysis of best practices as education evolves and what educators can do.
Keynote 2: <b>Prof Kristina Edström</b> <ul style="list-style-type: none"> <li>CDIO Founding Member</li> <li>Associate Professor in Engineering Education at KTH (Kungliga Tekniska Högskolan) Royal Institute of Technology</li> <li>Co-author of “Rethinking Engineering Education”</li> <li>Editor-in-Chief of the prestigious journal “European Journal of Engineering Education”</li> </ul> <a href="https://www.kth.se/profile/kristina/">https://www.kth.se/profile/kristina/</a>	Best practices from global institutions on integrating sustainability into education.
Keynote 3: <b>Dr Ong Yew Soon</b> <ul style="list-style-type: none"> <li>A*Star’s chief artificial intelligence scientist</li> <li>Launched the Bachelor of Science in Data Science and Artificial Intelligence flagship programme, which was featured by Forbes as one of the ‘10 Best AI And Data Science Undergraduate Courses for 2021’ along with Harvard, MIT, Stanford University, Carnegie Mellon University</li> </ul> <a href="https://dr.ntu.edu.sg/cris/rp/rp00092">https://dr.ntu.edu.sg/cris/rp/rp00092</a>	Potential of generative AI in transforming teaching and learning and the next phase of technology.
Keynote 4: <b>Assoc Prof Eric Chua</b> <ul style="list-style-type: none"> <li>Director, Centre for Learning Environment &amp; Assessment Development (CoLEAD)</li> <li>Associate Professor at the Singapore Institute of Technology</li> </ul> <a href="https://www.singaporetech.edu.sg/directory/faculty/eric-chua">https://www.singaporetech.edu.sg/directory/faculty/eric-chua</a>	AI as a learning support guide for students to be more self-directed.
Institutional speaker: <b>Ms Mari Ketola</b> <ul style="list-style-type: none"> <li>Head of Education and Research at Turku University of Applied Sciences (TUAS), Finland</li> <li>TUAS Common Studies, Faculty of Engineering &amp; Business, Finland</li> </ul>	Optimising Operations: Introducing the School of Common Studies.
Institutional speaker: <b>Dr Michael Wang Jianguo</b> <ul style="list-style-type: none"> <li>Deputy Executive Director, Vocational Training Council, Hong Kong</li> </ul>	Advancing Sustainable Transportation: Developments in New Energy Mobility.

<p>Institutional speaker: <b>Dr Nobuo Araki</b></p> <ul style="list-style-type: none"><li>• President of NIT, Kagawa College, Japan</li></ul>	<p>Entrepreneurship Education: The Next Stage in Kosen.</p>
<p>Institutional speaker: <b>Dr De Yang Lim</b></p> <ul style="list-style-type: none"><li>• Deputy Director, School of Computing, Singapore Polytechnic, Singapore</li></ul>	<p>Developmental Framework of Data and Learning Analytics Competencies for Polytechnic and ITE Lecturers.</p>

**APPENDIX B**

**Introduction of SP ILF 2024 partners**

<b>Partner</b>	<b>Details</b>
ISATE	<p>The International Symposium on Advances in Technology Education (ISATE) event started in 2007 as an international academic exchange between ten engineering colleges (known as Kosen in Japan) in the Kyushu and Okinawa districts of Japan and three polytechnics in Singapore. It aimed to enhance the quality of Engineering Education in each participating institution.</p> <p>Since then, the organising committee has grown to include all Kosen institutions in Japan, all polytechnics in Singapore, universities in Japan, and vocational institutes and training centres in Hong Kong.</p> <p>At SP’s ILF 2024, notable ISATE paper presentations will demonstrate the impact of technology on education, such as SP’s preliminary study on the impact of introducing Generative AI (GAI) tools on students’ confidence in writing and Republic Polytechnic’s predictive analysis of student academic performance at the module level with machine learning algorithms.</p> <p>The roundtables facilitate in-depth discussions on sustainability, technological advancement, and innovation in education. Serving as a platform for educators, these sessions enable sharing of insights, best practices, and collaborative strategies to advance teaching and learning practices. The discussions promote critical discourse, empower educators to enhance student learning and development, and address practical challenges faced by educational institutions. Additionally, they provide opportunities to explore various approaches and foster a sense of interconnectedness within the academic community.</p> <p>This is the second time Singapore Polytechnic has hosted the ISATE.</p>
CDIO	<p>SP is part of the CDIO (Conceive, Design, Implement, and Operate) Worldwide Initiative, which comprises more than 200 universities and institutions worldwide. This initiative promotes collaboration in innovative curriculum design and teaching and learning practices.</p> <p>The CDIO framework provides students with an education stressing engineering fundamentals in the context of Conceiving — Designing — Implementing — Operating (CDIO) real-world systems and products. Throughout the world, CDIO Initiative collaborators have adopted CDIO as the framework of their curricular planning and outcome-based assessment.</p> <p>SP piloted the CDIO Framework in 2004 when it was first introduced by the initial founding institutions, MIT, US, with KTH, Chalmers and Linkoping, Sweden. SP is the first institution in Singapore to become a CDIO member, and in 2007, all engineering programmes in SP adopted the CDIO Framework. The objective of implementing the framework was to transform unmotivated and uninterested first-year engineering students into engineering innovators</p>

	<p>with a social cause. Since then, CDIO has continued to be an important part of education in SP.</p> <p>The SP-CDIO Centre was formally established in 2022 to spearhead the use of the CDIO Framework to drive continual improvements in curricular design for programmes offered by SP. The centre is also a resource and touchpoint for CDIO collaborators to work together to address the challenges in education in today’s VUCA world.</p>
LeX	<p>The Learning Express (LeX) programme is an overseas student programme started by SP in 2013 to create an immersive learning platform for students from different nations, cultures, and academic disciplines to learn and apply Design Thinking collaboratively by working on authentic projects that solve local problems in the host countries.</p> <p>SP works with a network of Institutes of Higher Learning across ASEAN countries, China, and India to implement the programme and takes the lead in hosting the LeX Conference for all the partners, creating opportunities for sharing success stories and exchanging best practices.</p> <p>Students use Design Thinking to uncover insights and identify the unmet needs of overseas grassroots communities. SP students then partner with Overseas Partner Institutions in social innovation projects to co-create purposeful, sustainable solutions for the communities. Concurrently, students enjoy out-of-textbook experiences such as learning a new language or undergoing a community homestay.</p> <p>Since 2013, 8,906 SP students and partners have impacted over 200 communities in 10 countries through 176 trips.</p>