# Green and digital transition in TVET in the construction sector

**Lim Teng Leng**
**Deputy Director (International Relations)**

# National Programmes that affect digitalizing and greening TVET
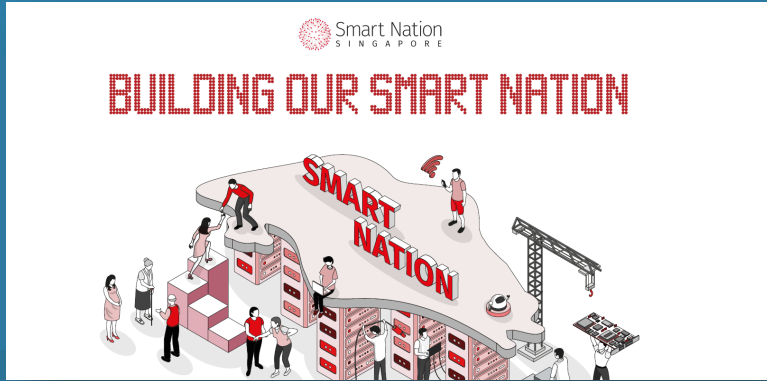




## Singapore Smart Nation

- Develop a digital-first Singapore is one where a Digital Government, Digital Economy and Digital Society harness technology to effect transformation in health, transport, urban living, government services and businesses.

## Singapore Green Plan 2030

- A whole-of-nation movement to advance Singapore's national agenda on sustainable development.

- Charts ambitious and concrete targets to advance Singapore's national agenda on sustainable development in five key pillars: City in Nature, Sustainable Living, Energy Reset, Green Economy and Resilient Future

# National Programmes that affect digitalizing and greening TVET



- Under the S$4.5 billion Industry Transformation Programme (ITM), roadmaps are developed for 23 industries to address issues within each industry and deepen partnerships between Government, firms, industries, trade associations and chambers.

- Each ITM consists of a sector-specific growth and competitiveness plan, covering areas such as productivity, internationalisation, innovation, digitalisation, and jobs and skills.

# Industry Transformation Map (Construction)

*Vision: An advanced and integrated sector* with widespread adoption of leading technologies, led by *progressive and collaborative firms* well-poised to capture business opportunities, and supported by a skilled and competent workforce offering *good jobs for Singaporeans*.

- ITM identifies Integrated Digital Delivery (IDD), Design for Manufacturing and Assembly (DfMA), as well as green building as key transformation areas to address the challenges faced by the sector.

- The transformation of the sector will result in redesigned jobs involving higher skills, more competitive salaries and better work environment to meet the aspirations of Singaporeans

# Architectural Technology and Building Services Diploma Programme



This 3-year course equips students with the necessary multi-disciplinary skill sets to design and manage smart and sustainable buildings for tomorrow's cityscape.

Students will also get to experience how technology is used in sustainable architecture and systems design, for today's digital economy.

# Architectural Technology and Building Services Diploma Programme

**The course focuses on 3 unique fields aligned to Singapore's industry transformation map**
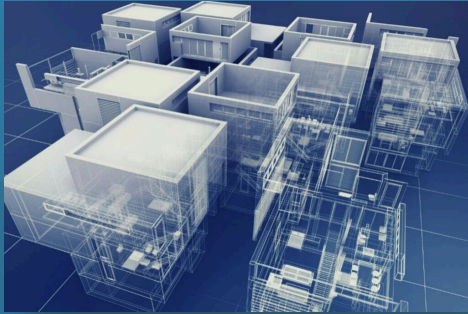


Digital Architecture



Energy Management



Sustainability

# Smart Technologies and Systems in IBEC



The Integrative Built Environment Centre (IBEC)'s comprehensive facilities make it the most complete set-up of its kind in any polytechnic. It provides students with access to the latest digital architectural design and engineering simulations to facilitate their learning, learn how technology and digitalisation are used to design smart and sustainable buildings for the future.
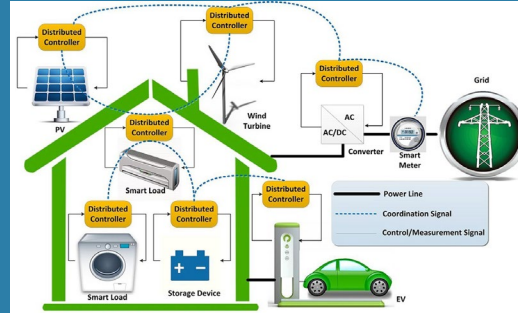
The IBEC also promotes collaborations among students, staff members and industry partners from diverse capabilities. Altogether, around 1,000 pre-employment training (PET) and 1,000 continuing education and training (CET) students will train at IBEC annually.

# Uniqueness of IBEC

## Live Systems to Plug and Play

Within its live environment, IBEC enables "plug and play" for learning with technology and data-driven facility management systems, exposing students to the latest technologies and industry demands so that they understand the importance of timely interventions within an authentic environment.

## Interdisciplinary Learning and Partner Collaborations

Tapping on various disciplines in architecture, design, engineering and information technology, IBEC is designed for interdisciplinary learning and promotes collaborations among students, staff and industry partners across a broad range of capabilities.

**Our Partners**

NEC • Infineon • LINGJACK DiGiTaL • SKILLSfuture SG • MITSUBISHI ELECTRIC Changes for the Better • blueSG

VEMAC SERVICES PTE LTD • TRUWATER • ebmpapst • National Environment Agency • Vanguard Fire Systems Pte Ltd

SIFMA • FSMAS • buildingSMART SINGAPORE

IBEC's comprehensive facilities make it the most complete set-up of its kind in any polytechnic. The two studios here also provide students with access to the latest digital architectural design and engineering simulations to facilitate their learning.



AI-Enabled Security System



Lift and Escalator Systems



Electric Vehicle Laboratory



Studios (Building Information Modeling Studio and Building Performance Studio)

*"Before this facility, our students had to learn everything from the textbook in a classroom setting."*

*"This means that they were not able to see for themselves how certain problems or solutions play out in real life, which limits their understanding because they would just accept the theoretical calculations rather than be prompted to ask further questions and experiment."* Dr Adrian Ang

Dr Adrian Ang, Head of Integrative Built Environment Centre

Architectural assistant Sara Tan has been training at the Integrative Built Environment Centre

"It really puts everything (the different systems) together, which helps us understand the whole journey of how a building develops, as opposed to being taught the different components separately in a classroom." Sara Tan

# Looking through the lens of 3 "I"s

**Identification:** Singapore Smart Nation Plan, Singapore Green Plan 2030 and Industry Transformation Map (Construction) inform the key focuses, priorities, strategies and outcomes of TVET (construction) in Singapore

**Integration:** Collaboration with industry partners in IBEC and through IBEC

**Implementation:** Live and authentic environment in IBEC to inject realism in learning

# Thank you

Lim_Teng_Leng@tp.edu.sg