

# シンガポール技術者協会(IES) との交流

衛生工学部会

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# **1. シンガポール研修旅行とIES訪問 (2016年11月20日～24日)**


**\* 日本技術士会衛生工学部会HPに報告書掲載**



Welcome to Singapore

歓迎

(公社)日本技術士会  
衛生工学部会ご一同様

	20 Nov (Sun)	21 Nov (Mon)	22 Nov (Tue)	23 Nov (Wed)
AM	Dep 8:50am SQ631 Flight from Japan <u>Haneda AP</u> [Flight Time 7 hours++] 	Dep Hotel 8:00am <b>Merlion</b> [ 9:30- 11:00 ] 訪問先 Visiting (A) District Cooling Plant Media Polis & Bio Polis by Keppel 11:25- 12:00 Lunch : <i>Song Fat 肉骨茶</i>	Dep Hotel 8:20am [ 9:00- 10:30 ] <b>Gardens by the Bay</b> <b>Marina Bay Sands</b> 10:40 - 11:30 Lunch: <i>Lau Pah Sah &amp; Tea</i>	After check out Dep Hotel 9am [ 9:30- 11:30 ] <b>Botanic Garden &amp; Orchid Garden</b> by MRT & BUS 12:00 - 13:30 Lunch: <i>Din Tai Fong at Chinatown Point &amp; Shopping at China Town</i>
PM	Arv Changi 2:45pm SQ631 Welcome Ceremony By HIS Coach to check in YWCA Fort Caning Hotel 6:30pm Welcome Dinner <i>Red House (Chilli Crab)</i> Stay Hotel	[ 12:30- 2:15 ] 屋上ダム散策 訪問先 Visiting (B) Marina Barrage by PUB <b>Mt Faber 30 min</b> 4pm <b>Tiger Beer Factory</b> 見学・試飲 1.5H Dep 5:40pm 6:45pm <i>Dinner Sugisawa at Robertson Quay</i> <b>MBS Laser Show at Esplanade</b> Stay Hotel	[ 12:30- 1:30 ] 訪問先 Visiting (C) NEWater Visitor Centre by PUB [ 2:00- 3:30 ] Meeting at Marina Cove [ 4:30- 5:30 ] 訪問先 Visiting (D) The Institute of Engineers, Singapore ~5:30pm 6:30pm <i>Dinner Cristal Jade</i> VIVO CITY Stay Hotel	[ 14:00- 17:00 ] <b>Nation Gallery</b> <i>Dinner at Plaza Singapura</i> 6:50pm YWCA To start Changi AP 7:20pm Dep 9:40pm SQ636 Arv to <u>Haneda Japan</u> 5:58am 24Nov
Remarks				

# 訪問先



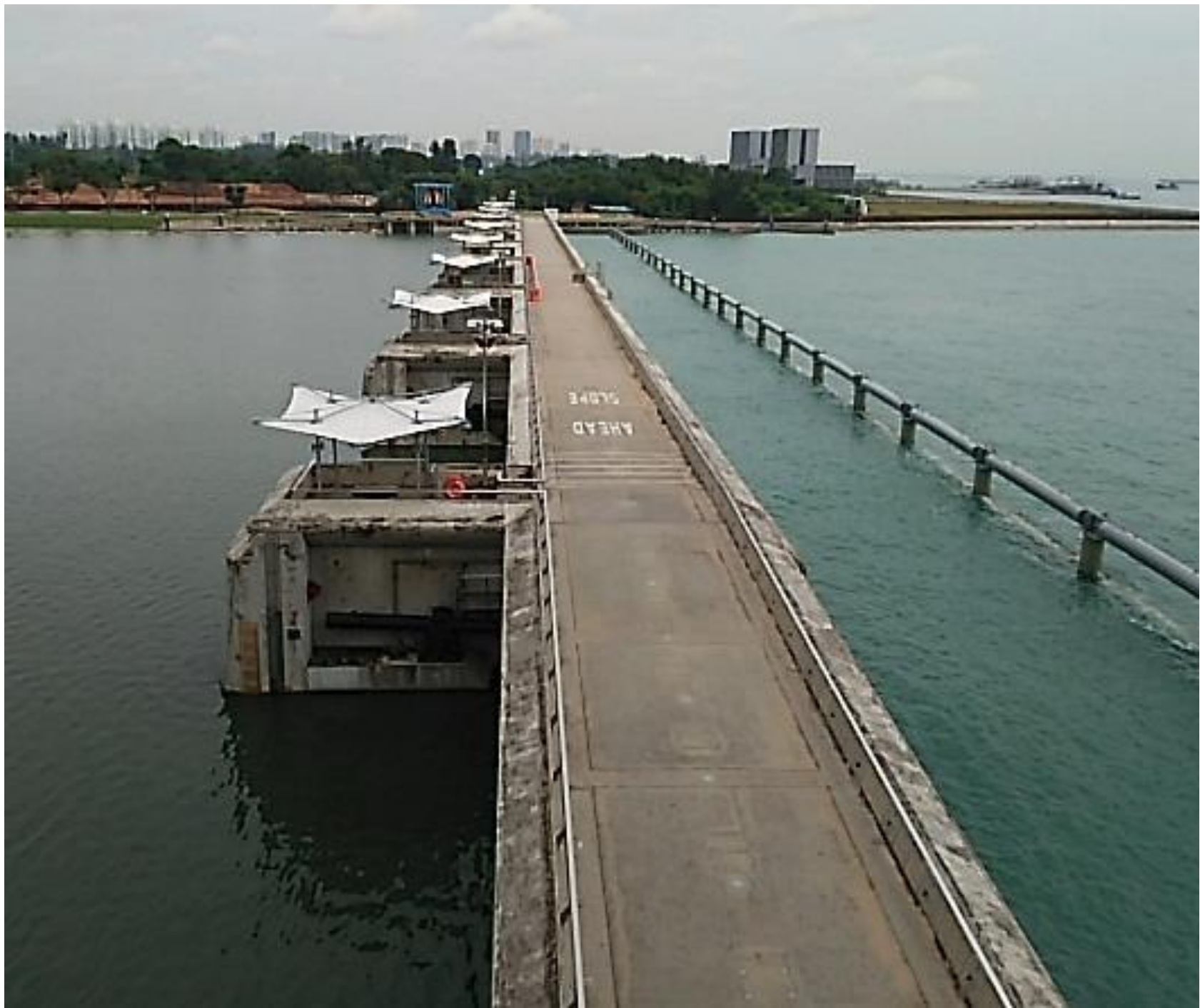












AHEAD  
SLOPE



# シンガポール 建築建設局 (BCA) グリーンマーク制度



## 5. 主要評価基準

<b>1. エネルギー効率</b> 	<b>2. 水の効率性</b> 
	<b>3. 環境保護</b> 
	<b>4. 屋内環境の質</b> 
	<b>5. その他の環境上の特徴</b> 

1. エネルギー効率を特に重視
2. 熱帯向けにカスタマイズ
3. 完成後建築物の性能評価

グリーンマーク	再提出	認定		ゴールド		ゴールドプラス		プラチナ		
スコア	0	49	50	74	75	84	85	89	90	100

エネルギー節約分の  
見積もり

10% ~ 15%

15% ~ 25%

25% ~ 30%

30%以上



安全、良質、持続可能で、フレンドリーな建築環境を作ります。



High values of stress is generated in work. It requires per man day to about 1 kg. Acute stress which depends on any of the stress to keep the performance level. Although there are different kinds of stress, the most part of the stress is the work stress. Stress can be measured by the rate of pulse and controlled by high temperature environment at an indoor air quality and controlled by high temperature environment at an indoor air quality. To the work stress, stress generation by work (PMB) is one of the main ways to increase environmental load. However, PMB is not always, but it can generate efficiency. The other is that the number of it with high a little. In conclusion, the result of PMB, the control measures and health plan at the end of the day. This book is needed for the author method of the stress stress through statistical way using statistical and operational data of Tokyo Metropolitan area. The book is very effective. The book is very useful to help out of PMB.

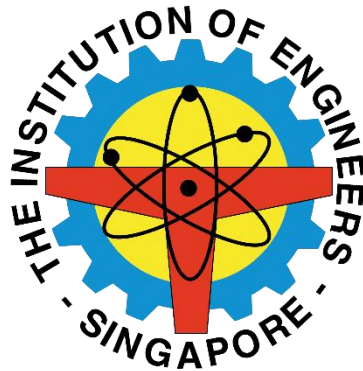


## 2. IESの概要

- ・IESはシンガポールの技術者団体として、  
国を代表して活動。(非政府組織、会員対象数  
10万人)

- ・シンガポールのPE組織 The Professional  
Engineers Board Singapore (PEB)は政府組  
織であり、対外活動が出来ない。

# **The Institution of Engineers, Singapore (IES)**

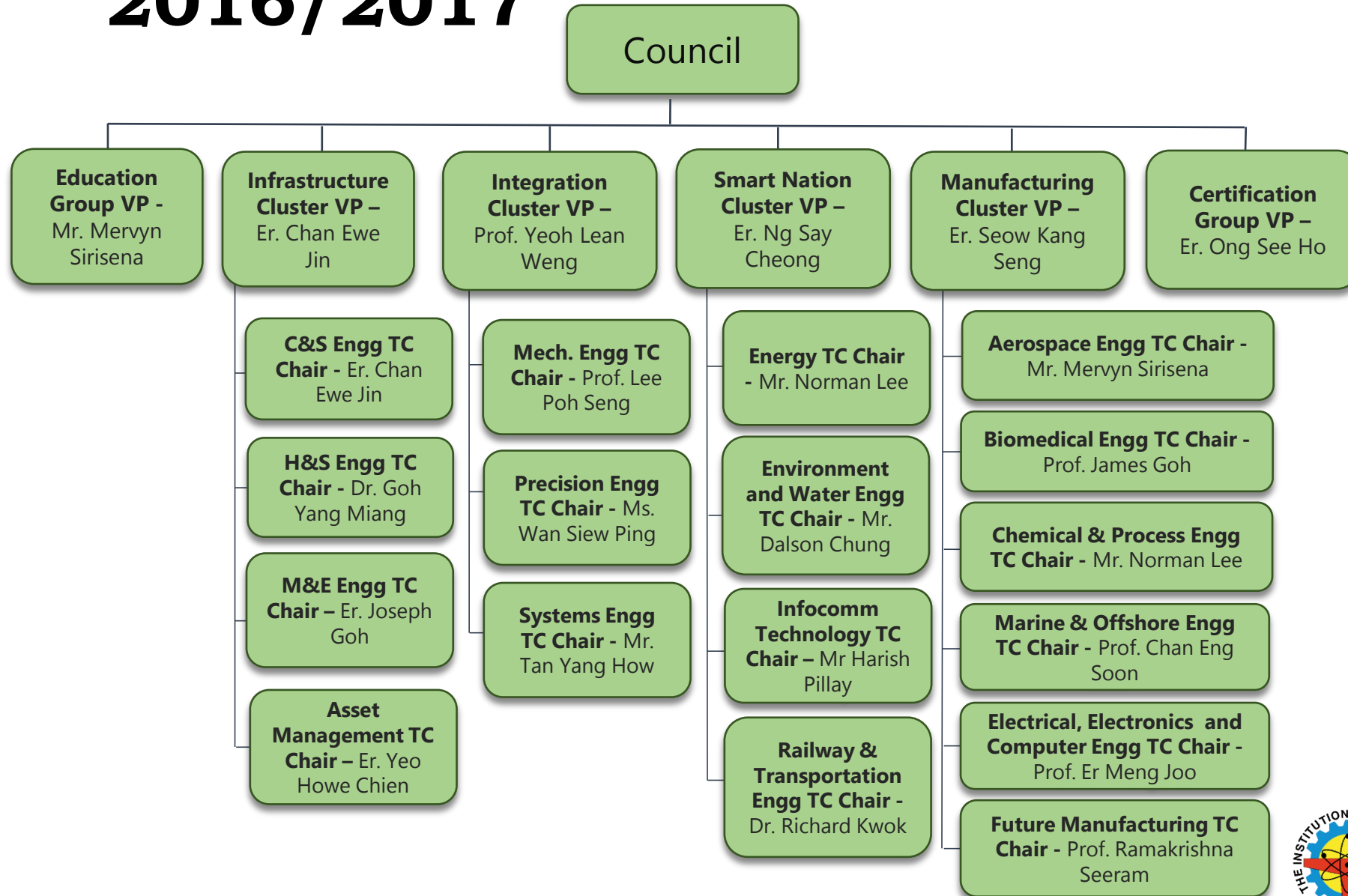


# IES - Our Roles and Responsibilities

- **Represent** the engineers nationally and internationally
- **Advance** the knowledge and expertise of engineers
- **Uphold** the status and image of engineers
- **Provide** a platform for engineers to gather for social, business, professional and career development



# Council Organisation Chart 2016/2017



# Core Activities

**Purpose:** *Benchmark and raise technical competencies of our engineers*

1. Professional Registries
  - ABC Waters Professionals, Qualified Electrical Contractors, Resident Engineers/Resident Technical Officers, etc.
2. Conferences, Seminars and Events
  - Gather industry experts and professionals to share knowledge and discuss perspectives, thoughts and action plans to address challenges.

## **Examples:**

- National Engineers Day
- World Engineers Summit
- IES Climate Change Resilience Forum



# The Institution of Engineers, Singapore

Established since 1 July 1966

## Mission

To advance and to promote the science, art, and the profession of engineering for the well-being of mankind

## Vision

To be the heart and voice of engineers and to be the national body and home for engineers in Singapore



# Core Activities

## 3. Training

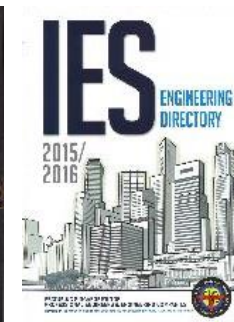
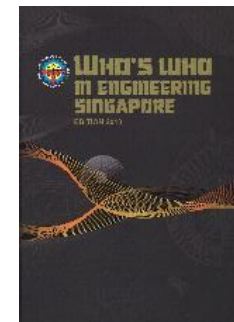
- IES Academy; provides training and continuous professional development courses for engineering professionals.
- **188** training activities run, **8,449** engineers trained in 2015/2016.

## 4. Publications

- Commemorate milestones, recognise engineers, communicate with members, source of industry information.

### Examples

- Who's Who in Engineering Singapore
- IES Directory
- The Singapore Engineer Magazine



# Core Activities

## 5. Chartered Engineers Singapore Registry

- Mark of recognition and competency for engineers

Pilot sectors:

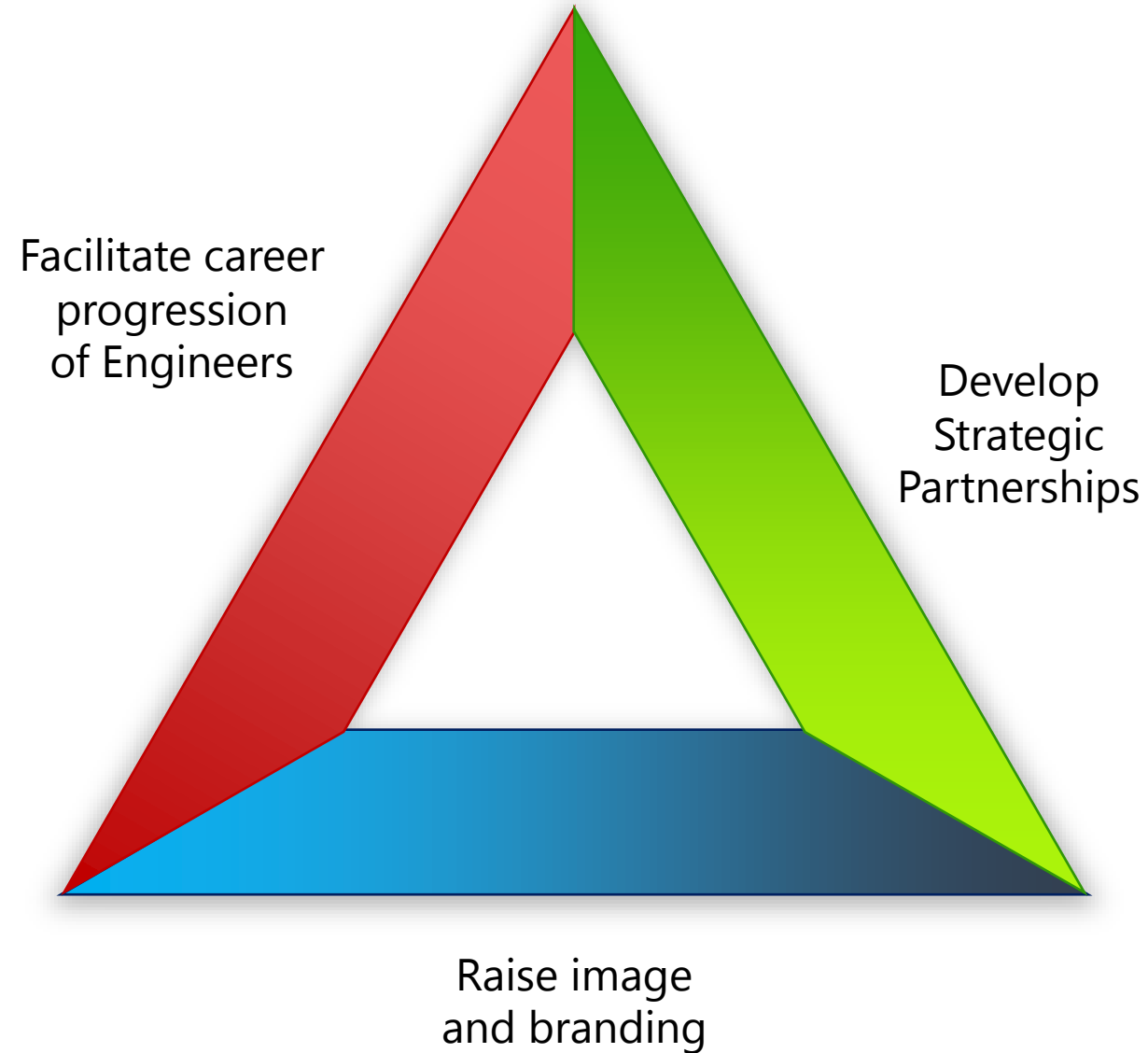
- ▶ Aerospace Engineering
- ▶ Chemical & Process Engineering
- ▶ Environmental & Water Engineering
- ▶ Marine & Offshore Engineering
- ▶ Systems Engineering
- ▶ Railway & Transportation Engineering

## Eligibility:

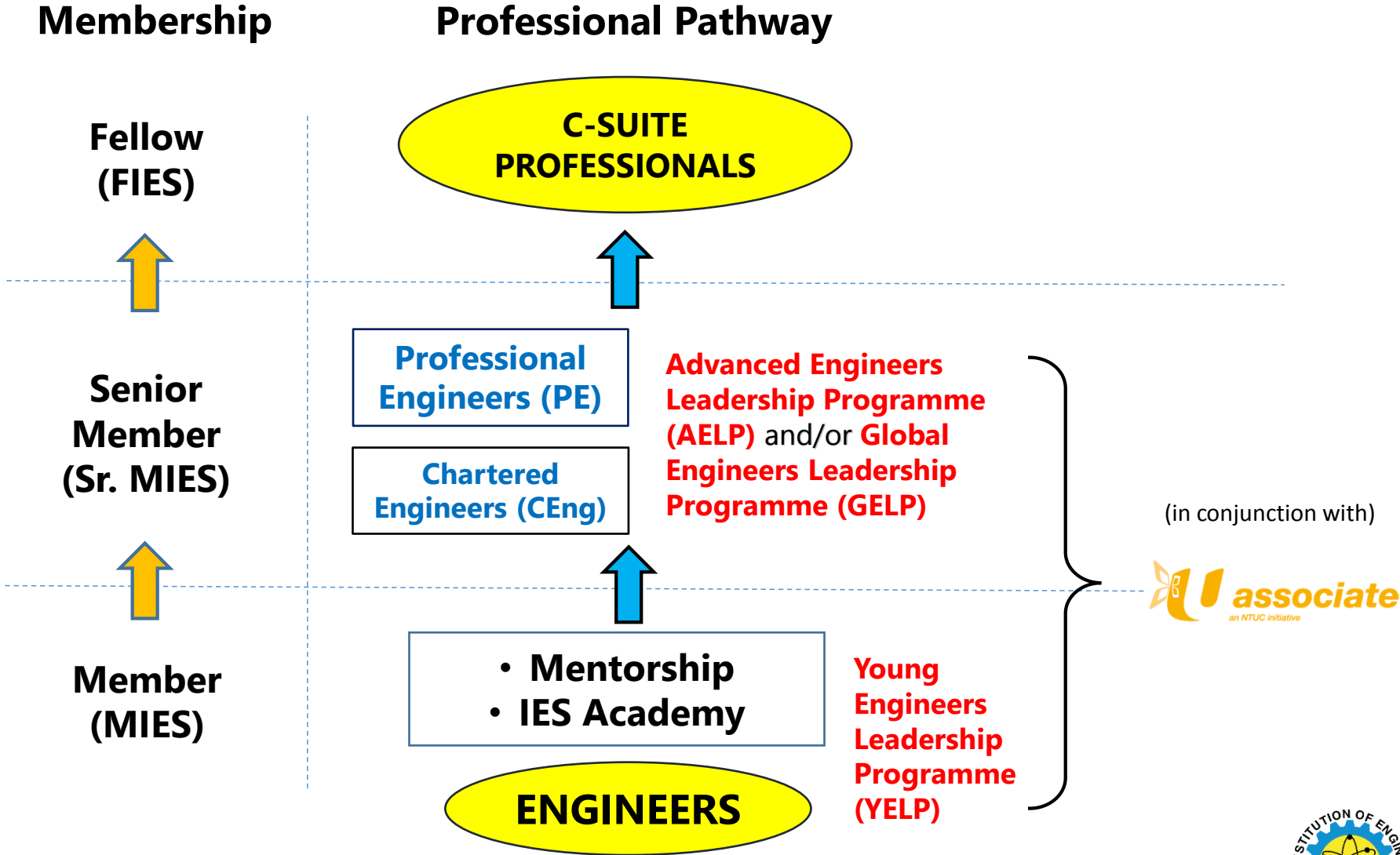
- IES Corporate Member
  - MIES, Sr. MIES, FIES
- Washington Accord Accredited Degree or equivalent
- Skills and experience that meet competency standards set by the Board
  - At least **four** years of practical working experience



# Strategies Beyond IES50



# Career Progression: Pathways



# Young Engineers Leadership Programme (YELP)

- A joint initiative by IES and NTUC U Associate, the programme aims to strengthen young engineers' competencies in the areas of technology management, leadership and soft skills
- 10 units of 1-day modules: Taught by industry experts and C-suite speakers



# Advanced Engineers Leadership Programme (AELP)

- Launched on 25 April 2016 during the Opening Ceremony of IES Academy @ Jurong East (Guest-of-Honour: Mr Chan Chun Sing, Secretary-General, NTUC)
- Aims to develop senior engineers in the middle management to acquire advanced future-ready technology management and leadership competencies.
- Prepare the participants for higher responsibilities and roles in their respective organisations and to build their engineering careers.



# Advanced Engineers Leadership Programme (AELP)

- Focus on:
  - Design thinking in safety, innovation and energy
  - Engaging Leadership with Cross-cultural Teams
  - Future-ready for Big Data and Internet of Things
  - Leveraging on technology and innovation for future growth
  - Leading in VUCA (Volatility, Uncertainty, Complexity and Ambiguity) Times and crisis communication
- Industry relevant modules over a 4-6 month programme
  - Impactful Pre-Learning - Pre-module preparatory materials
  - Insights from Industry thought leaders
  - In-depth Collaborative Mini-Project
  - Learning from Mentors
  - Insightful networking sessions with world-class leaders



# How you can participate in YELP and/or AELP

- Recommending staff to attend the programmes
- Providing venue for learning journey
- Providing trainers/speakers
  - E.g. C-suite executives or senior management can offer to mentor participants and share their vast experiences.



# Image and branding

*I. Media appearances to stimulate discussion, provide opinion and promote recognition*



Channel NewsAsia

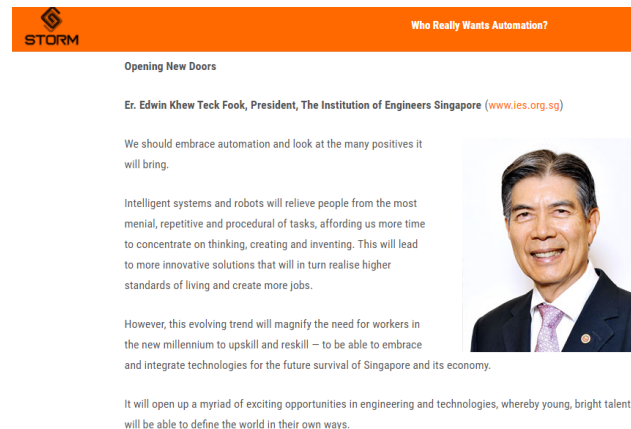
**Mainstream  
and online  
news media**



Lianhe Zaobao



Capital 95.8FM



Storm.sg



# Image and branding

*II. Events to engage the community and inspire young engineers-to-be*

National Engineers Day 2016

**Theme:** Engineers – Innovators & Creators of the Future

**Held on:** 23 & 24 July 2016, HDB Hub Atrium

- Improved young people's perception of engineers and the profession.
- Presented engineering in a positive way and enthused the young to take engineering as a career of choice.
- Engaged the young with live experiences – site visits to large facilities, manufacturing plants, design offices, research centres, etc.
- Promoted mini engineering projects & competitions – Energy Innovation Challenge.
- Initiated programmes and activities that engaged and resonated with the younger generation. Also reached out to parents whose role in influencing their children's decision to make engineering a career cannot be overlooked.

Supported by



Ministry of Education  
SINGAPORE

NATIONAL  
RESEARCH  
FOUNDATION  
PRIME MINISTER'S OFFICE  
SINGAPORE



# Develop Strategic Partnerships

*Some of our Memorandum of Understanding (MoU) & Mutual Recognition Agreement (MRA) Partners:*



# Develop Strategic Partnerships

## Working relationship with:

- NUS
- NTU
- Private educational institutions such as:
  - PSB Academy
- A\*STAR

## Approached senior management for discussions on long-term collaboration:

- Agencies
  - NEA, EMA, LTA, DSTA, URA, MPA, BCA, URA
- Corporate entities
  - SIA, Surbana Jurong, SIAEC, JTC, Keppel O&M, ST Engineering

## In the pipeline:

- SUTD
- The 5 polytechnics (NP, NYP, SP, TP, RP)
- ITE



# How we can work together

**Volunteer  
with IES**

(Technical  
Committees,  
etc.)

**Chartered  
Engineer  
Programme**

**Participate,  
support  
events**

(e.g. WES, NED)

**Promote  
engineering**

(e.g. school outreach,  
sponsor scholarships,  
competition prizes)



### **3. IESの訪日技術見学と技術士会訪問 (2017年5月13日～21日)**

# 日本技術士会関連見学・懇談会

- 5月17日13時～15時

Technical Presentation on Japan's Smart Cities at Tokyo Denki University Kita-senju, Tokyo.

- 5月17日16時～18時

Meeting between IES & IPEJ (The Institute of Professional Engineers, Japan\*)

- 5月18日9時半～11時半

- Visit to R&D Centre of Taisei Technology Centre) in Higashi-Yokohama- presentation on R&D activities, Lab demonstrations, guided tour of Lab facilities.

東京電機大学



TECHNICAL STUDY OF JAPAN'S SMART CITIES  
ROBOTICS APPLICATIONS & MANUFACTURERS OF  
MAJOR BUILDING EQUIPMENT  
"Organised by The Institution of Engineers, Singapore"  
9Days 7 Nights Technical Study Trip, via  
OSAKA, KYOTO, NAGOYA, YOKOHAMA & TOKYO  
13th May - 21st May 2017





ミツヤ虎ノ門ビル

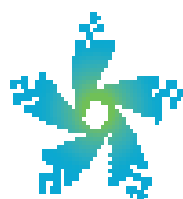


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**4・WES – CUE2017**  
**(2017年7月18日～21日 Singapore)**



WES-CUE 2017

**WORLD  
ENGINEERS  
SUMMIT**

APPLIED ENERGY  
SYMPOSIUM & FORUM

**Register today for WES-CUE 2017**  
IES members enjoy special rate at S\$642\* for full conference pass.



Registration to the World Engineers Summit – Applied Energy Symposium & Forum: Low Carbon Cities and Urban Energy Joint Conference (WES-CUE) 2017 is now OPEN.

From 18 – 21 July 2017, the third biennial conference will continue to champion engineering-led discussions on sustainable urban development.

# Image and branding

## *II. Events to engage the community and inspire young engineers-to-be*

World Engineers Summit 2017 – Applied Energy Symposium and Forum: *Low Carbon Cities and Urban Energy* (WES-CUE2017) Joint Conference

**19 – 21 July 2017 | Suntec Singapore**



**Prof SK Chou**  
Steering Committee Chairman,  
World Engineers Summit 2017  
Dean, IES College of Fellows  
Past President



**Er. Ng Say Cheong**  
Organising Committee Chairman,  
World Engineers Summit 2017  
Vice President, Smart Nation Cluster



# Image and branding

## II. Events to engage the community and inspire young engineers-to-be

### World Engineers Summit 2017 – Applied Energy Symposium and Forum: Low Carbon Cities and Urban Energy (WES-CUE2017) Joint Conference

TECHNICAL TRACKS					
Transport	Building	Industry	Environment	Power Generation & Energy Storage	Urban Planning
<ul style="list-style-type: none"> <li>• Aviation</li> <li>• Rail</li> <li>• e-Mobility/Public Transport</li> <li>• Unmanned Vehicles &amp; Systems</li> <li>• Unmanned Aerial Vehicles</li> <li>• Traffic Management</li> <li>• Logistics &amp; Freight Management</li> <li>• Shipping &amp; Port Services</li> <li>• Internal Combustion Engines &amp; Fuels</li> <li>• Modeling &amp; Simulation</li> </ul>	<ul style="list-style-type: none"> <li>• Building Management Systems</li> <li>• Sustainable Building Envelopes</li> <li>• Low Carbon Materials</li> <li>• Cooling &amp; Heating Systems</li> <li>• Energy Standards</li> <li>• Modeling &amp; Simulation</li> <li>• Sky-rise Greening</li> </ul>	<ul style="list-style-type: none"> <li>• Green Manufacturing</li> <li>• Food Processing &amp; Storage</li> <li>• Oil and Gas</li> <li>• ICT Infrastructure/ Data Centres</li> <li>• Modeling &amp; Simulation</li> <li>• Urban Farming</li> </ul>	<ul style="list-style-type: none"> <li>• Waste Water Management &amp; Reclamation</li> <li>• Solid Waste Management</li> <li>• Land Reclamation</li> <li>• District Cooling &amp; Heating</li> <li>• Recycling &amp; Waste Management</li> <li>• Waste to Energy</li> </ul>	<ul style="list-style-type: none"> <li>• Solar Energy</li> <li>• Wind Power</li> <li>• Hydro power</li> <li>• Bio-energy</li> <li>• Wave and Tidal</li> <li>• Smart Grid</li> <li>• Advanced Storage Systems</li> <li>• Economics of Electricity Generation</li> <li>• Geo-thermal Energy</li> <li>• Baseload Power Generation</li> </ul>	<ul style="list-style-type: none"> <li>• Low Carbon Economy</li> <li>• Urban Governance</li> <li>• Policy and Integrated Master-planning</li> <li>• Smart &amp; Sustainable Urban Design</li> </ul>

