

The AEI Electrical Blueprint: Towards ASEANising ASEAN Graduate Engineers

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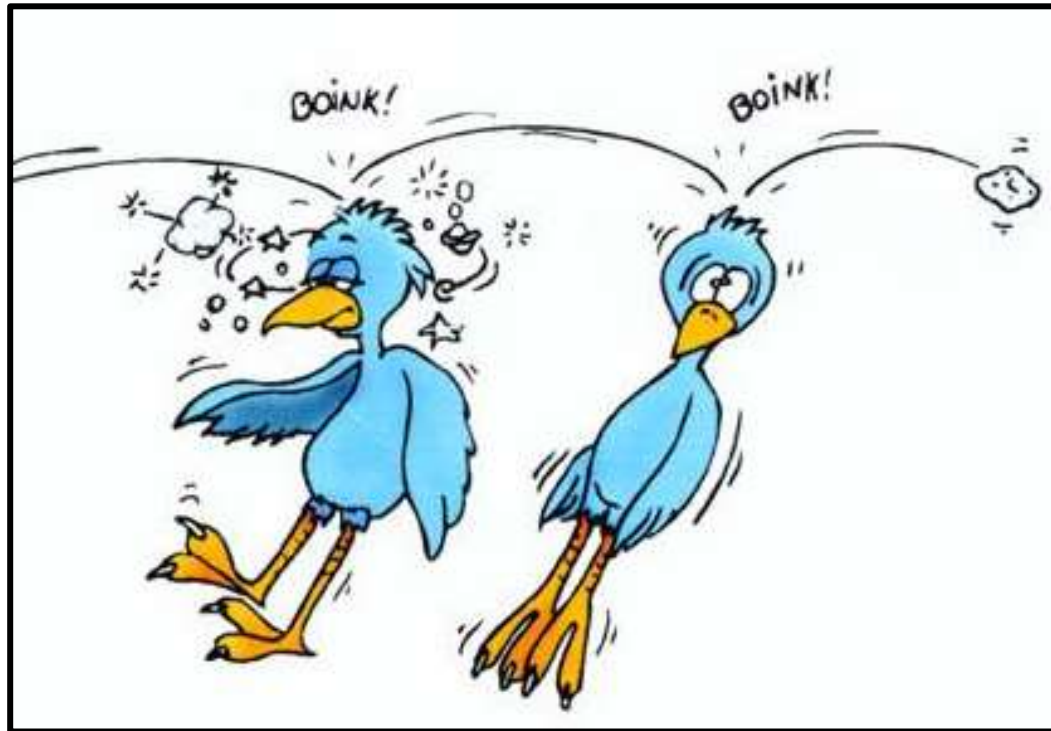
PROBLEM #1



PROBLEM #2

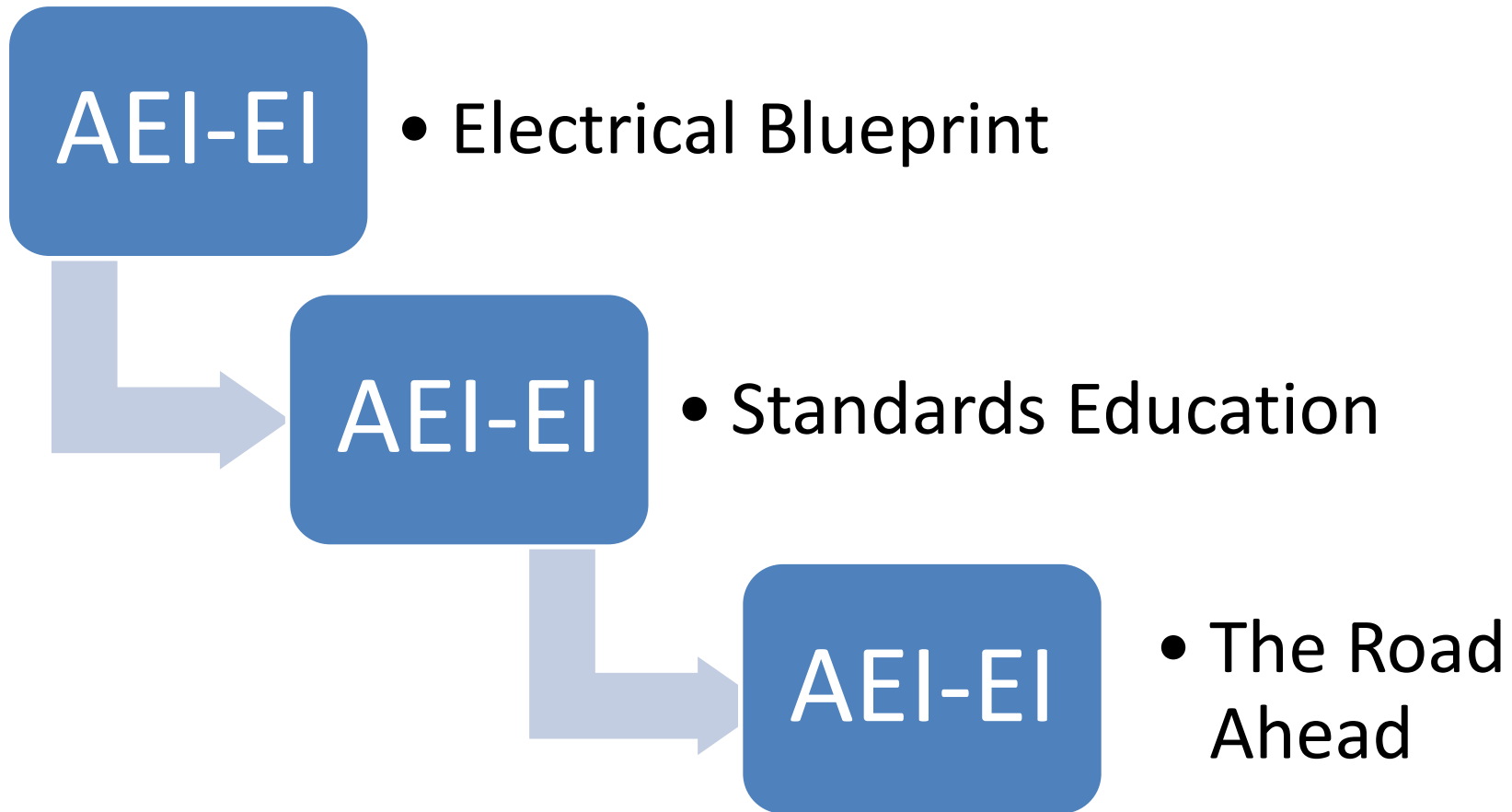


How can we.....



<https://www.harborcompliance.com/blog/2014/12/22/end-year-perfect-starting-llc/>

INTRODUCING.....



Chapter 1: The AEI Electrical Blueprint

*The Original Plan



ASEAN 50
★ ★ ★ ★ ★ 2017 ★ ★ ★ ★ ★



AEI – ELECTRICAL BLUEPRINT (2018-2035)

16th November 2017

Bangkok

Let's backtrack a little

AFEO Mid-Term 2017

- *The AFEO Secretary General has indicated that the AEI-EI Committee should look at long term plan and also efforts in providing a master plan in concurrent with the AEC Blueprint 2025*

CAFEO Nov 2017



Bangkok Declaration

1st AEI-EI Sub Committee Meeting



Bangkok Declaration



WE at CAFE0 35 hereby RESOLVE: -

A) To Exchange Best Practices and to Generate Guidelines on Sustainable Cities, Disaster Preparedness, Engineering Education and Capacity Building, Environmental Engineering, Energy, and Transportation and Logistics

I. THAT AFEO through its six (6) working groups commits to share documented best practices among all Member Organisations by 2020.

II. That the AFEO WG on Energy shall develop the AEI Guidelines on Electrical Installation to harmonise and standardise the electrical installation system amongst ASEAN countries by 2025

III. THAT AFEO shall produce an ASEAN Road Safety Guidelines (RSG) jointly with ASEAN Road Safety Centre (ARSC) by 2019. The RSG shall be developed through sectoral cooperation and shall provide a source of reference and guidance to ASEAN's policy makers with responsibility for road safety to improve regional integration.

The AEI Electrical Blueprint

Back to Present

Overview



- **Short Term (2018-2020)**
- **Mid Term (2021-2025)**
- **Long Term (2025-2035)**

Present



- Survey on electrical installation standards in ASEAN region
- Awareness seminars/roadshows
- AEI Electrical Inspection Guidelines – Version 2.0

Short Term (2018-2020)



To create awareness amongst engineers/other stakeholders in ASEAN countries

- 2018 Plans
 - AEI Roadshow
 - Individual Country Activity Plans To Be Discussed
 - Launch Of White Paper Of AEI Electrical Installation Amongst ASEAN Countries in KL ASEAN Symposium.
- 2019 Plans
 - AEI Training On Electrical Inspection & Installation
 - AEI Train the trainers programme
 - AEI Electrical Installation Guidelines (By 2019 – CAFEO 2019)
 - Further identify potential stakeholders



Feasibility Study –

White Paper On Electrical Installation Standards In Buildings Amongst ASEAN Countries



Prepared By:
Electrical Engineering Technical Division (EETD)
The Institution of Engineers, Malaysia (IEM)



Supported By:
International Copper Association Southeast Asia Ltd.




<https://www.facebook.com/iesemalaysia/>

<http://www.iese.my/index.html#home>

Mid Term (2020-2022)



Implementation Stage

In this term, divided into four efforts:-

- Education
 - To introduce electrical standards to university academician/students and to be included as elective/core subject for the universities students
- Stakeholders
 - Further enhance stakeholders participation by inclusion of all relevant stakeholders in the national working group.
- Standards Usage
 - To organize short course/seminar related to standards that provides certificate of completion to attendees
- Registration Of Electrical Engineers

Long Term (2023-2035)



2023-2025 – 2 years

The AFEO WG on Energy will develop the AEI Guidelines on Electrical Installation with the aim to harmonise and standardise the electrical installation system amongst ASEAN countries by 2025.

Individual AFEO members to pursue the harmonization and adoption in their respective countries.

2026-2035 – 10 years

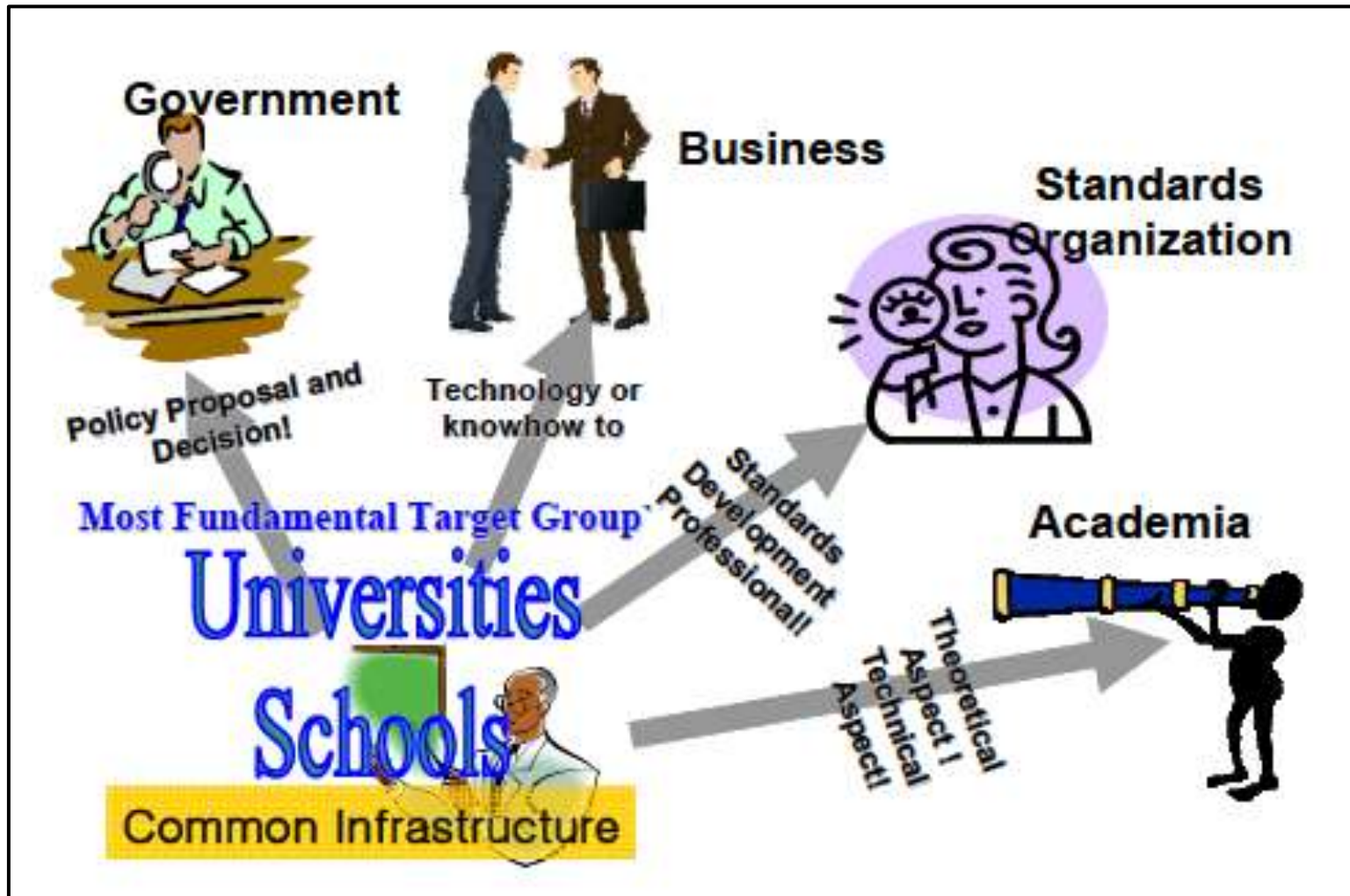
Involvement at ministerial level

ASEAN involvement in IEC and other international organizations on regards in promoting the harmonization of Electrical Installations Standards

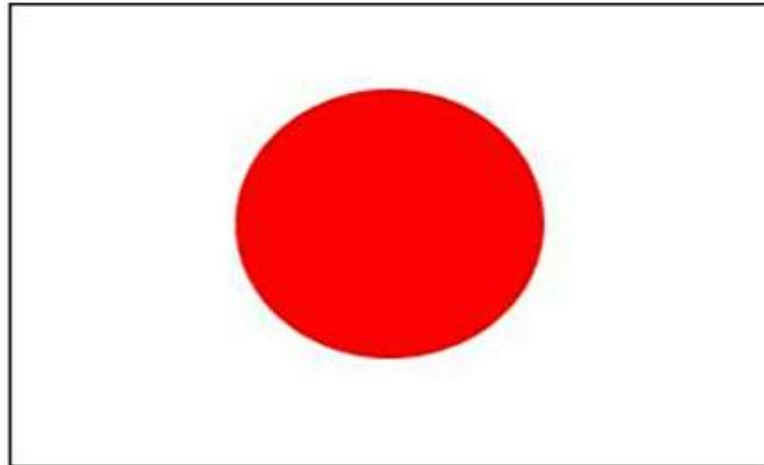
Chapter 2: AEI-EI Standards Education Initiative

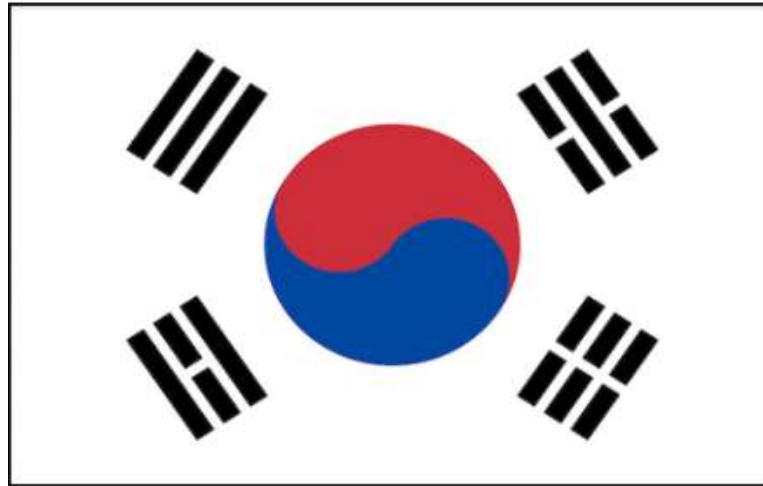
*The Accelerated Plan

What is Standards Education (SE)?



Who are the Champions of SE?





KSA KOREAN
STANDARDS
ASSOCIATION



국가기술표준원
Korean Agency for Technology and Standards

Standards Education Curriculum

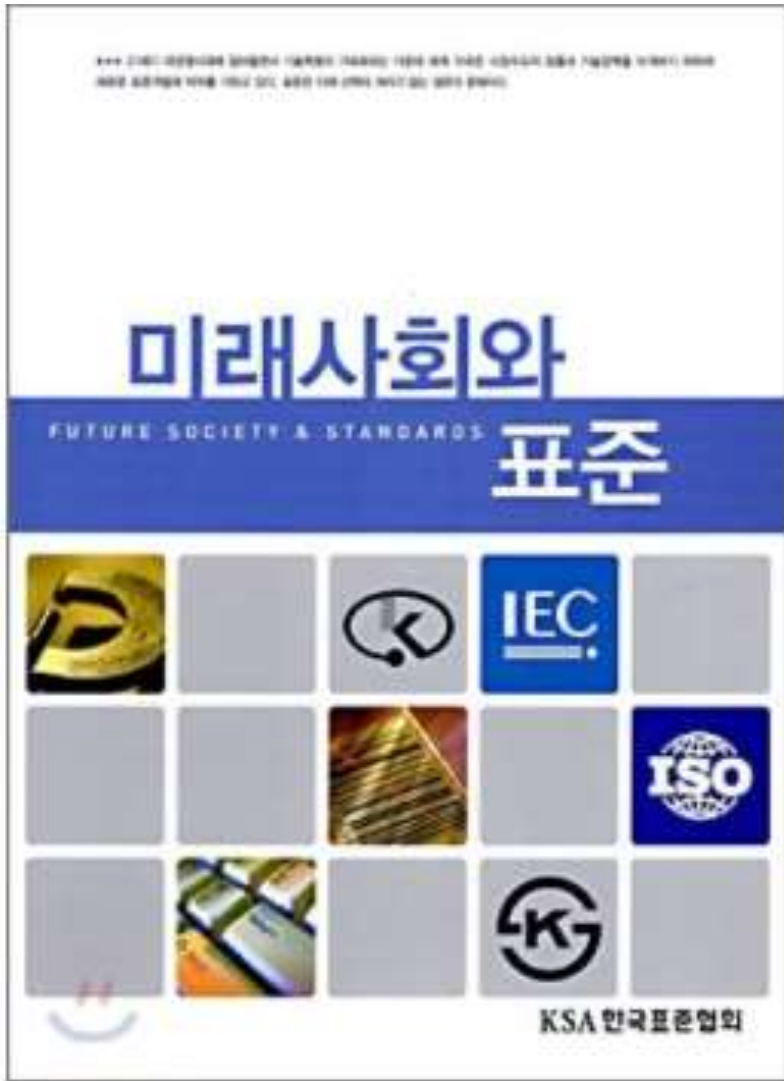
Trainees	Content
Elementary Schools	Standardisation education
Middle & High Schools	-International standards Olympiad -chapter in technology textbook
Universities & Colleges	University Education Programme on Standardisation (UEPS)
Industries	Standards professionals, international standardization, standards management strategy guide
Consumers	Nationwide standards education for public to raise awareness

University Education Promotion on Standards - UEPS

Course	Description
Coordinator	Korean Standards Association
Primary target group	Undergraduate Engineering Students
Title & Textbook	Future Society and Standards
Credit	2~3 credits (32~48 hours for 16 weeks)
Type	Common/Majors, Elective/Mandatory
Syllabus	Main Common Textbook with Flexibility by Professors
Teaching Assistance	Power-point Slides of Textbook, Online Teaching Materials
Others	Guest Lecture Pool, Field Trip contacts

Evolution of UEPS





6,000 원

Parts	Chapters
I. Introduction of standardization	1. Standardization overview - Definitions, Classifications, Objectives, Impacts and Importance
II. Standardization Activities	2. International Standardization - International Standards, Standardization, Organizations 3. National Standardization - Development, Structure, Implementation and Future 4. Company Standardization - Business Strategy, Management, and Standardization
III. Contents of Standards	5. Metrology and Reference Materials - Scientific/Industrial and Legal Metrology, Reference Materials, SI, International Cooperation 6. Conformity Assessment - Conformity Assessment overview, Conformity Assessment in Korea, Major Countries, Mutual Recognition Agreement
IV. Use of Standards	7. Standards and IPR - IPR and Economic Activities, Standards and IPR, Standardization and Anti-Competition 8. Future of Standards - Current and Future Trends and Issues of Standards





LATEST NEWS, 2013-01-23

Students develop standard on wind turbines

Introducing students to the world of standardization – that was the aim of the "Standardization and offshore wind energy" forum hosted by DIN, the German Institute for Standardization and "MINT-EC", an association for talented young scientists, engineers and mathematicians (in German "MINT" stands for mathematics, informatics, the natural sciences and technology). The forum was held on the 17th and 18th of January in Hamburg. Lecturers outlined the general importance of standardization and its particular significance for the offshore wind energy sector. Wolfram Braasch of Windkraft Union AG illustrated the benefits of standards for his company's day-to-day practice, for instance for personal protective equipment, corrosion protection, and laying undersea cables correctly. Mr Braasch concluded that standardized processes, components and systems considerably minimize risks.

Following the lectures, the 20 students from Grades 10 to 13 used their new-found knowledge to develop a standard of their own in a simulated standards committee meeting. The aim of the standard was to give guidelines for emergency management in wind energy facilities. After learning about the basics of standards work, the young "standardizers" defined terms, classified hazard zones in a wind farm, and assessed the risks associated with each zone. The students quickly realized how difficult it is to come to full consensus, which is a basic principle of standards development. Despite the sometimes heated discussions, the 20 new standards experts were able to draw up a draft of a very "realistic" standard.

<https://www.din.de/en/din-and-our-partners/press/press-releases/students-develop-standard-on-wind-turbines-97536>

Perks of joining DIN

You can take an active role in shaping German standardization policy while enhancing the position of your company.

You receive up to five vouchers for free participation in standards committees. Each voucher is valued at 1,090 Euro (net).

You receive exclusive information on standards policy and can vote at the members' annual assembly.

You are invited to top-notch events. DIN provides a platform for you to exchange your views and ideas with other companies. One new type of event we have organized is the "Member Talk," which gives members a chance to speak personally with DIN's Executive Board.

You receive access to free "webinars" that provide you with valuable knowledge on standardization.

You receive our newsletter giving you the latest standardization news.

You acquire the right to reproduce DIN Standards for internal purposes as often as you wish. You can also save the documents in your own internal electronic network, making them easily accessible to your employees.

You can take advantage of a 15 percent discount on the purchase of DIN Standards, the DIN Catalogue of Technical Rules, DIN's monthly journal "DIN-Mitteilungen" and DIN Academy seminars.

You can use the DIN membership logo to market your company.

Exclusive to DIN members, you can hire rooms in DIN's modern conference centre at our Berlin headquarters.



D10. China Jiliang University – SQM (Undergraduate) (Annex.B #12)

Title	The Higher Education of Standardization in China Jiliang University (CJLU) – SQM bachelor program																			
Operator	China Jiliang University (CJLU) (http://english.cjlu.edu.cn)																			
Target Groups	F3) SQM (undergraduate students from standardization and quality management discipline)																			
Learning Objectives	<ul style="list-style-type: none"> ✓ To work at company standardization jobs. ✓ To serve to the standardization management sectors of the government at different levels. ✓ To serve to the medium servicing organization for standardization. 																			
Operation Summary	<ul style="list-style-type: none"> ✓ China Jiliang University (CJLU, formerly the China Institute of Metrology) is the only university qualified to offer Bachelor and Master degrees in the sectors of Quality Supervision, Inspection and Quarantine in China ✓ Students must take six essential courses and are advised to take one elective course ✓ The students from SQM for bachelor degree have 4 years to get the degrees. <table border="1" style="margin: 10px auto; width: 80%; text-align: center;"> <thead> <tr> <th colspan="5">Number of Students in SQM bachelor program</th> </tr> <tr> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>77</td> <td>164</td> <td>191</td> <td>160</td> <td>592</td> </tr> </tbody> </table>					Number of Students in SQM bachelor program					2003	2004	2005	2006	Total	77	164	191	160	592
Number of Students in SQM bachelor program																				
2003	2004	2005	2006	Total																
77	164	191	160	592																
Textbook(Syllabus) or Curriculum Summary	Title:	Standardization and Quality Management Discipline (SQM) curriculum																		
	Authors, Publisher, Year																			
	Table of contents (curriculum or Syllabus)	1. Standardization Principle (36Hour) 2. International Standardization (36H) 3. WTO TBT and SPS (36H) 4. ISO9000 Family Standards and Quality System Certification (54H) 5. Quality management (54H) 6. Standardization in Companies and Markets (16H) (IIAS E-Learning Platform - EU-Asian Link Project Outcome) 7. (elective) ISO14000 Standard and Environment Management System Certification (36H) * Professional Practice of Standardization (4 Weeks) * Auditor Training for ISO9001 (1 Week)																		
	Weblink	NA																		

D11. China Jiliang University – MEE, TTMM (Master) (Annex.B #13)

Title	The Higher Education of Standardization in China Jiliang University (CJLU) – MEE and TTMM programs	
Operator	China Jiliang University (CJLU) (http://english.cjlu.edu.cn)	
Type (Target Groups)	F4) Graduate -Type1: Mechanical and Electronic Engineering(MEE) -Type2: Testing Technology and Measuring Meters(TTMM)	
Learning Objectives	<ul style="list-style-type: none"> ✓ To draft the professional, local or national standards; ✓ To participate in the regional or international standardization activities as the representatives of the organization. ✓ To engage in standardization management affairs in the government and big companies. 	
Operation Summary	<ul style="list-style-type: none"> ✓ 2004- present ✓ About 30 students graduated each year from MEE and TTMM ✓ The students from MEE and TTMM for master degree have 2.5 years to obtain their degrees. 	
Textbook(Syllabus) or Curriculum Summary	Title:	MEE and TTMM curriculum
	Authors, Year	N/A
	Table of contents (curriculum or Syllabus)	1. Standardization Principle (36Hour) 2. WTO TBT and SPS (36H) 3. ISO 9001 Standard and Quality System Certification



The Joint Statement of the 18th APEC Ministerial Meeting, Hanoi in 2006, included an instruction of *“the APEC Ministers recognized the importance of standards education and encouraged members to develop reference curricula and materials to address the significance of standards and conformance to trade facilitation in the region.”* Noting the instruction of ministers, APEC Sub-Committee on Standards and Conformance(SCSC), which has been working since 1994 in helping APEC Economies to address key issues in standards and conformance, initiated a project titled *APEC Strategic Standards and Conformance Education Program in 2007.*

Project Number: APEC CTI21/2007T



**Asia-Pacific
Economic Cooperation**

Education Guideline
On Standards and Conformance
for APEC Member Economies

APEC SCSC
Education
Guideline

1

APEC SCSC Education Guideline 1

**Case Studies of How to Plan and Implement
Standards Education Programs
and Strategic Curriculum Model**

APEC CTI SCSC
March 2008

Korean Standards Association (KSA)
Korean Agency for Technology and Standards (KATS)

Project Number: APEC CT/20/2008T

project website: www.wisestandard.org



**Asia-Pacific
Economic Cooperation**

APEC SCSC Education Guideline 2

APEC Strategy for Education and Outreach on
Standards, Conformity Assessment, and Technical
Regulations (SCATR)

APEC CTI SCSC
July 2009

KSA KOREAN
STANDARDS
ASSOCIATION



Ministry of Knowledge Economy
Korean Agency for Technology and Standards

Why Standards Education?

- Standards drive global value chain
- Demand for standards expertise to grow
- Job requirement to rise



ASEAN ELECTROTECHNICAL SYMPOSIUM & EXHIBITION 2018

STANDARDS DRIVE GLOBAL VALUE CHAINS

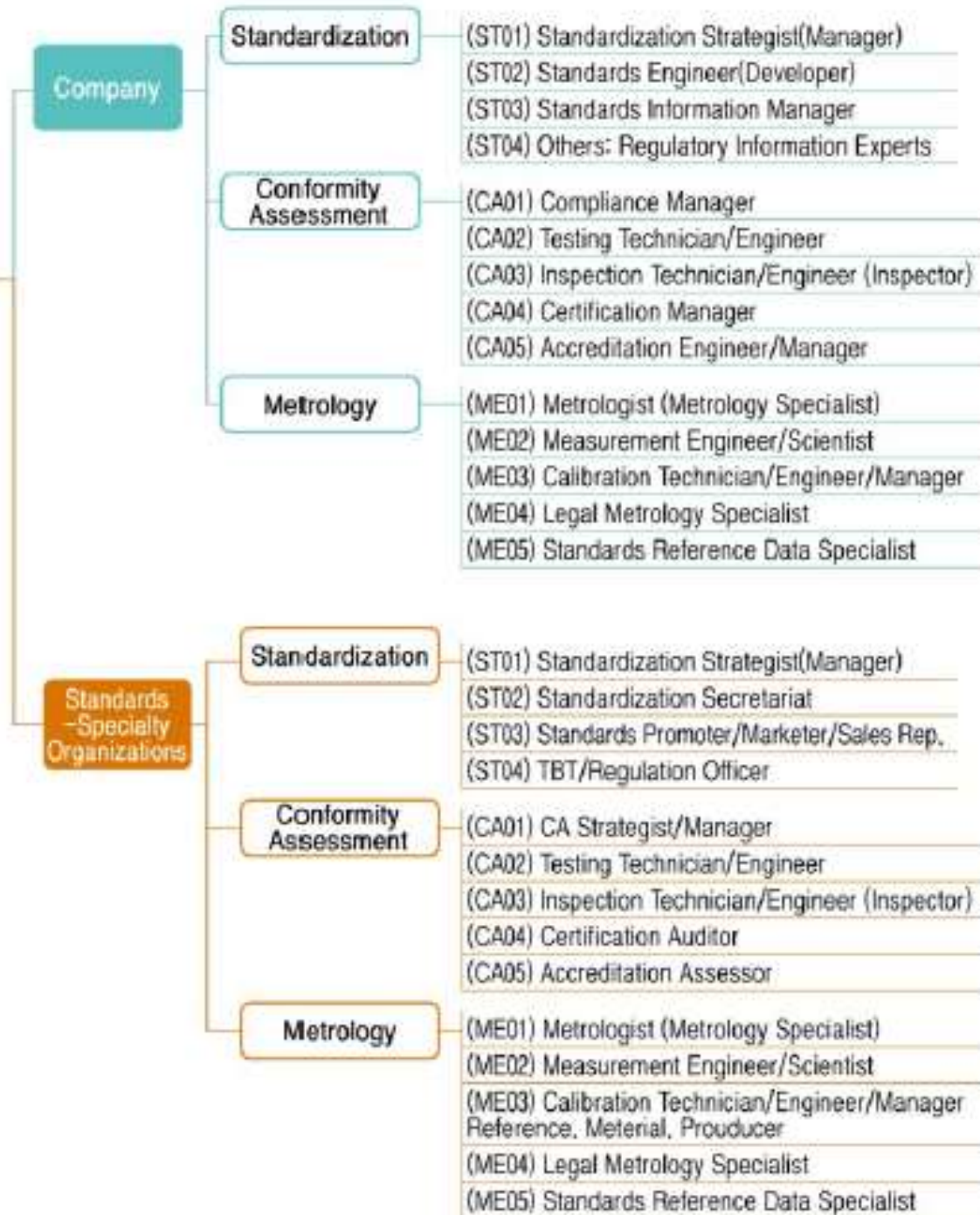


04th - 05th DECEMBER, 2018



CONNEXION CONFERENCE & EVENT CENTRE, KUALA LUMPUR, MALAYSIA

Standards Professionals - Exemplary Job Title



How can AEI-EI help?



Feasibility Study –

White Paper On Electrical Installation Standards In Buildings Amongst ASEAN Countries

Prepared By:
Electrical Engineering Technical Division (EETD)
The Institution of Engineers, Malaysia (IEM)

Supported By:
International Copper Association Southeast Asia Ltd.



Description	Malaysia	Malaysia (Sarawak)	Brunei	Laos	Myanmar	Cambodia	Singapore	Thailand	Indonesia	Vietnam	Philippines
Electricity Regulations & Electrical Safety Regulations Authority	Energy Commission (EC)	Electrical Inspectorate Unit (EIU), Ministry of Public Utilities Sarawak	Department of Electricity Services (Till 2018)	The Ministry of Energy and Mines	Electrical Inspection Department, Directorate of Supervision and Inspection, Ministry of Industry	Ministry of Mines & Energy	Energy Marketing Authority (EMA)	Energy Regulatory Committee (ERC)	Direktorat Jenderal Ketenagalistrikan (DGE)	Ministry of Industry and Commerce, Ministry of Science and Technology, Ministry of Construction and other relevant ministries.	Board of Electrical Engineering (BEE)
Standards Writing Authority	Department of Standards Malaysia (DSM)	Refer to Department of Standards Malaysia (DSM)	Department of Electricity Services	The Ministry of Energy and Mines	Technical Committee of Electrical & Electronic, Ministry of Education	Ministry of Mines & Energy For Electrical Installation Works	Spring Singapore (Standards, Productivity and Innovation Board)	Engineering Institute of Thailand (EIT) – for engineering standards	Standards Nasional Indonesia (SNI)	Directorate for Standards, Metrology and Quality (STAMEQ)	Institute of Electrical Engineers (IIEE) Philippines

Description	Malaysia	Malaysia (Sarawak)	Brunei	Laos	Myanmar	Cambodia	Singapore	Thailand	Indonesia	Vietnam	Philippines
Registration of Electrical Products	Energy Commission (EC)	Electrical Inspectorate Unit (EIU), Ministry of Public Utilities Sarawak	Authority For Building Construction Industry (ABCI) – Consumer Product	The Ministry of Energy and Mines	Electrical Inspection Department, Directorate of Supervision and Inspection, Ministry of Industry	Not Available	Spring Singapore (Standards, Productivity and Innovation Board)	Thai Industrial Standards Institute (TISI)	Lembaga Sertifikasi Produk	Ministry of Science and Technology (MOST)	Bureau of Products Standards (BPS)
National standards on Electrical Installation and Electrical Safety	MS1979, MS1936 & MS IEC 60364	Refer to Malaysian Standards & International Standards	Electricity Installation Regulation 2011	Lao Electric Power Technical Standards	Electricity Law 2014, National Building Code 2016	The Electricity Law - promulgated by the Royal Decree no.NS/RKM /0201/03, dated February 02, 2001	CP 5 & CP 88	Thai Electricity Code 2013	Electrical Installation Regulation: Pensyaratan Umum Instalasi Listrik (PUIL) 2011	National Technical Regulation on Electrical Installations of Dwelling and Public Building & National technical regulation on Electric safety	National Electrical Code (NEC)
General Reference Standards	IEC	IEC/BS	IEC	IEC	IEC	IEC	IEC/BS	IEC	IEC	IEC	Mixture
					AEI-EI						40

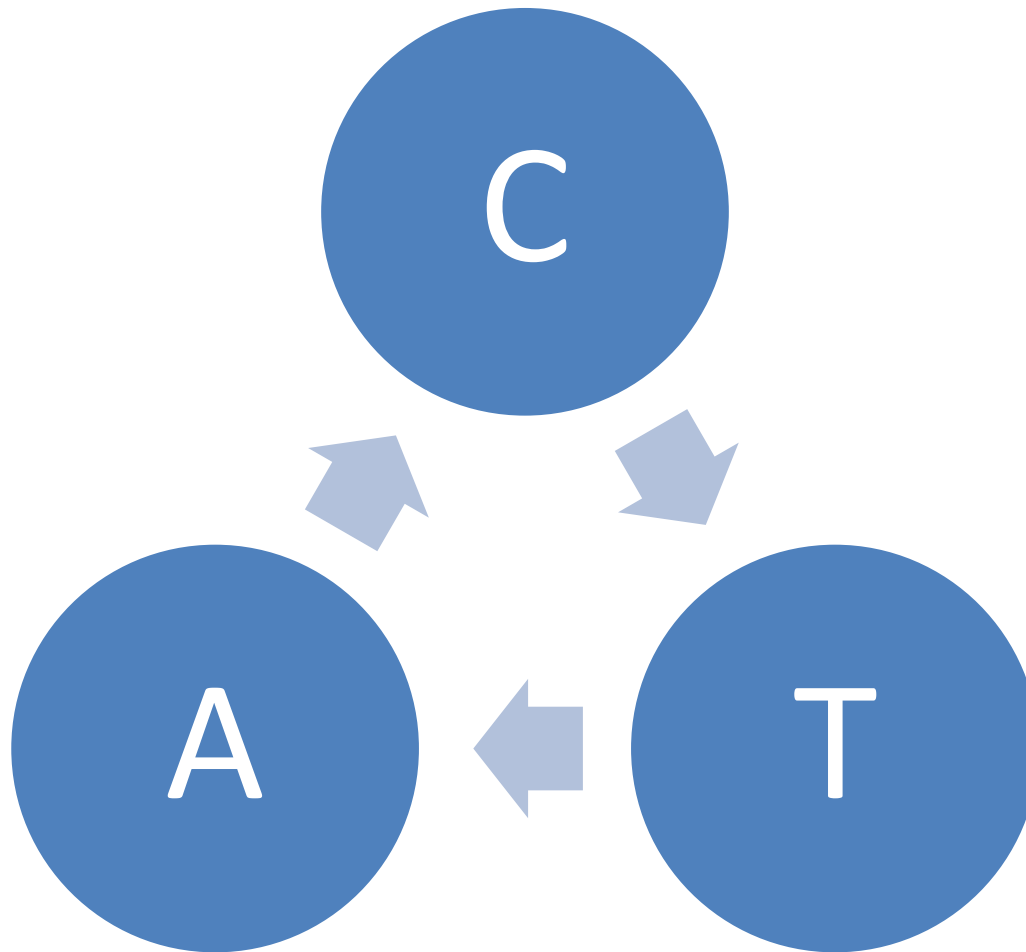
Year	Milestone
2019	<ul style="list-style-type: none"> ● Engagement with institution of higher learning (IHL) in Malaysia ● Formation of AEI-EI Standards Education Committee (Malaysia)
2020	<ul style="list-style-type: none"> ● Development of AEI-EI scholarly material ● Engagement with IHL's in ASEAN
2021	<ul style="list-style-type: none"> ● Development of Train-The-Trainer programme for dissemination of AEI-EI knowledge to engineering students
2022	<ul style="list-style-type: none"> ● Development of mobility programme for academics ● Development of cross-border internship programme for participating IHL's
2023-2025	<ul style="list-style-type: none"> ● Intergovernmental initiative ● Link with national qualification framework

Chapter 3: The Road Ahead

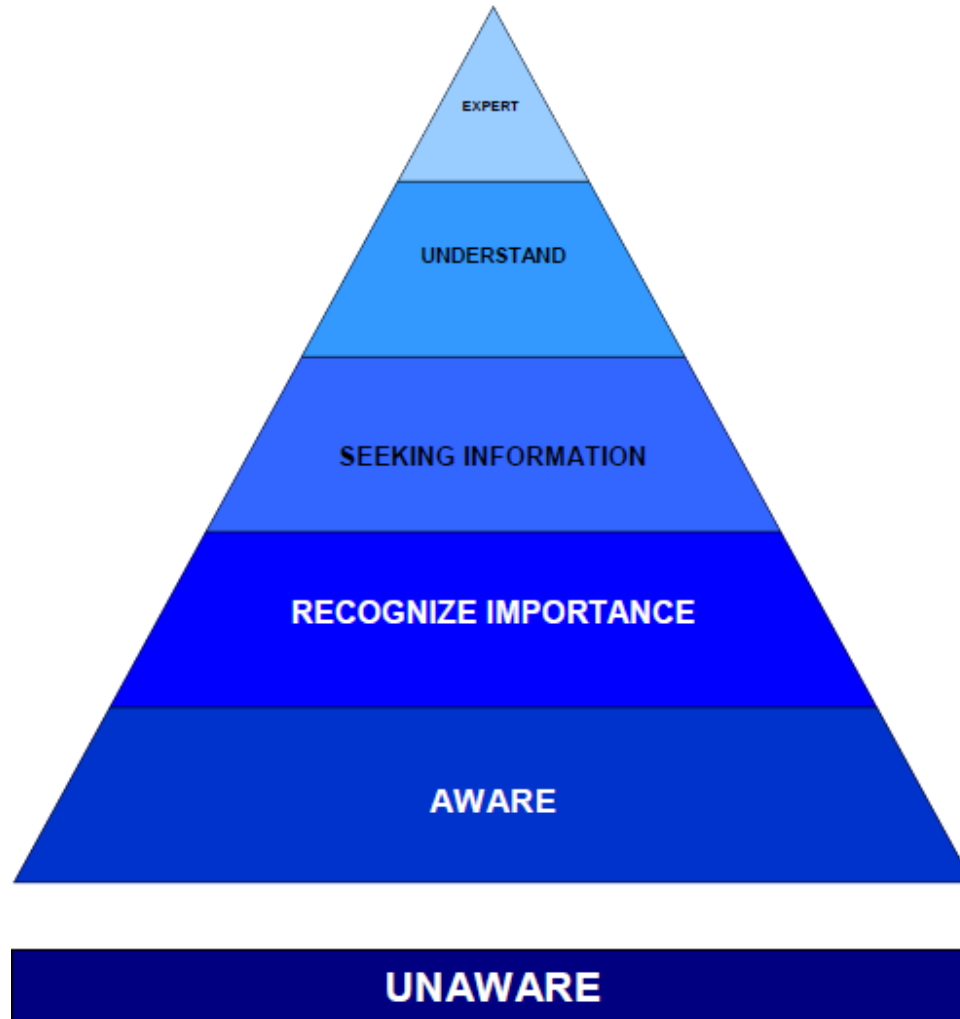
Challenges to Standards Education

- Students perceived as dull and dry
- Academics have no interest/not familiar
- No space in curriculum/overloaded with other topics
- No autonomy among interested professors/scholars to implement the subject
- Lack of stimulus such as national policy

Holistic SE System



SCATR



ASEAN

ECONOMIC COMMUNITY

BLUEPRINT 2025

21. If necessary, ASEAN will consider further improvements to existing MRAs and consider the feasibility of additional new MRAs to facilitate the mobility of professionals and skilled labour in the region.



one vision, one identity, one community

AEI-EI

Can We ASEANise Our Graduate Engineers???



References

1. http://eng.ksa.or.kr/ksa_english/5176/subview.do
2. <https://pascnet.org/standards-education/>
3. APEC Education Guideline 1: Case Studies of How to Plan and Implement Standards Education Programs and Strategic Curriculum Model
4. Academic Standardisation Education, Rotterdam School of Management, Erasmus University in Europe, Hesser, W. and Vries, H. (2011)
5. <http://www.standards-education.org/>
6. APEC Education Guideline 2: APEC Strategy for Education and Outreach on Standards, Conformity Assessment and Technical Regulations

Q&A?



Terima Kasih

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Salamat

Thank You

ขอบคุณ

cảm ơn

