



Choosing the right career: Why you should go for the engineering profession

Presenter:

Dato' Ir. Prof. Dr. Hassan Basri
Examinations & Qualifications Committee Member

Date: 15th September 2021
Venue: Zoom

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The Engineering Profession in Malaysia:

- Benchmarked against the World's Best
➤ **Recognised Internationally**

It is the Profession of Choice!



Outline of Presentation

What Engineers Can Do

Engineering For National Development

BEM & the Engineering Profession

International Recognition of Malaysian Engineers

Conclusion – Engineering, the Profession of Choice !

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What can engineers do?





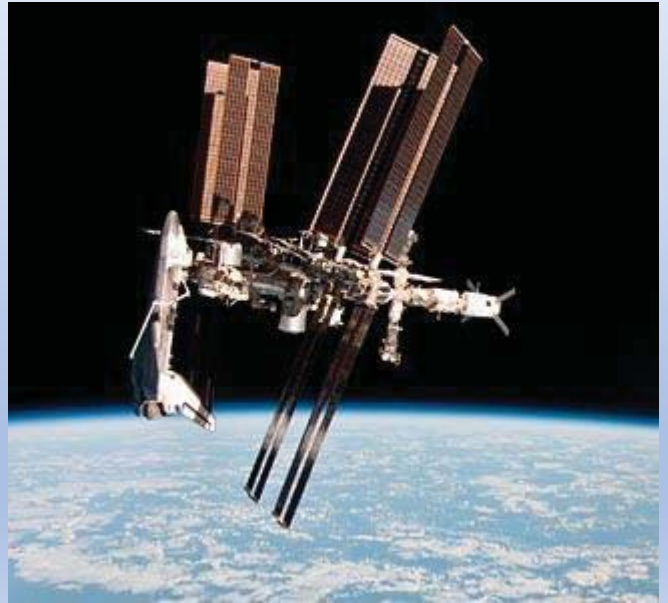
Millau Viaduct

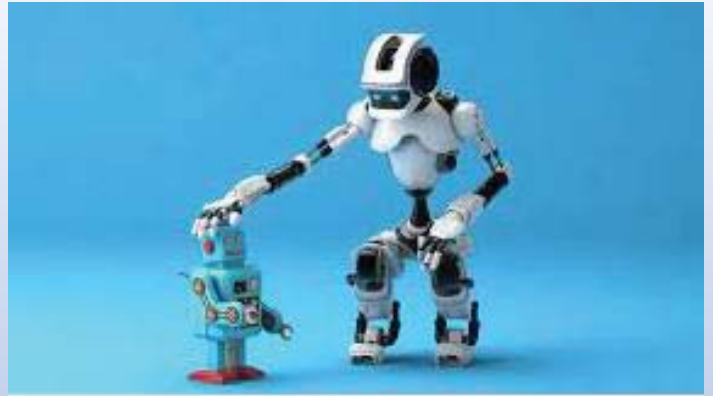




LANGKAWI
SKYBRIDGE









- Green engineering**
attempts to achieve four goals:
1. Waste reduction;
 2. Materials management;
 3. Pollution prevention; and,
 4. Product enhancement.

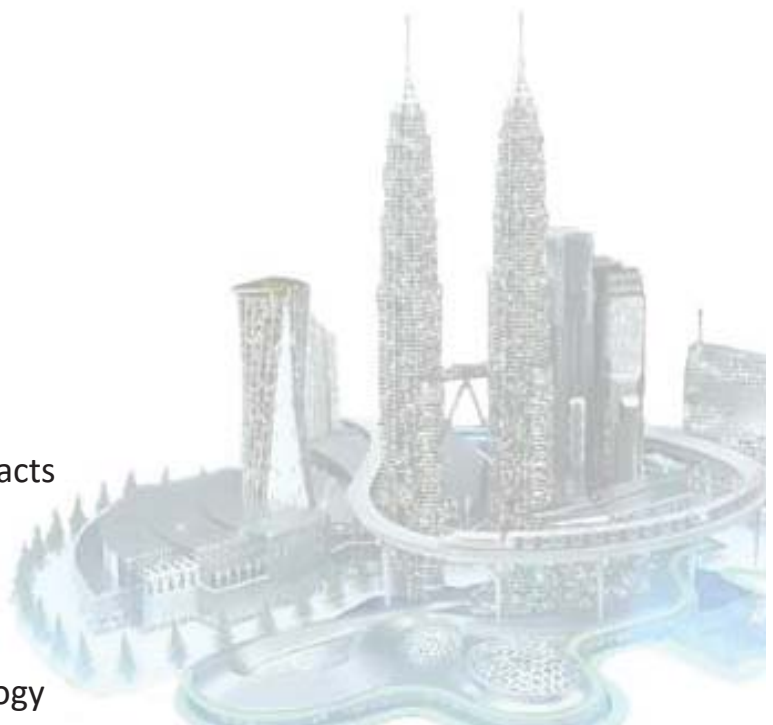
Sustainable engineering

use energy and resources sustainably,
i.e., at a rate that does not compromise;

- the natural environment, or
- the ability of future generations to meet their own needs

What engineers can do:

- Buildings & infrastructure
- Water supply
- Food production
- Housing and shelter
- Sanitation and waste management
- Energy generation and management
- Transportation
- Communication
- Industrial processing
- Development of natural resources
- Cleaning up polluted waste sites
- Minimisation of environmental and social impacts
- Restoring natural environments such as forests, lakes, streams, and wetlands
- Improving industrial processes to eliminate waste and reduce consumption
- Adoption of appropriate & innovative technology



Engineering for National Development



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Backdrop

The increasing demand for engineers in developing countries

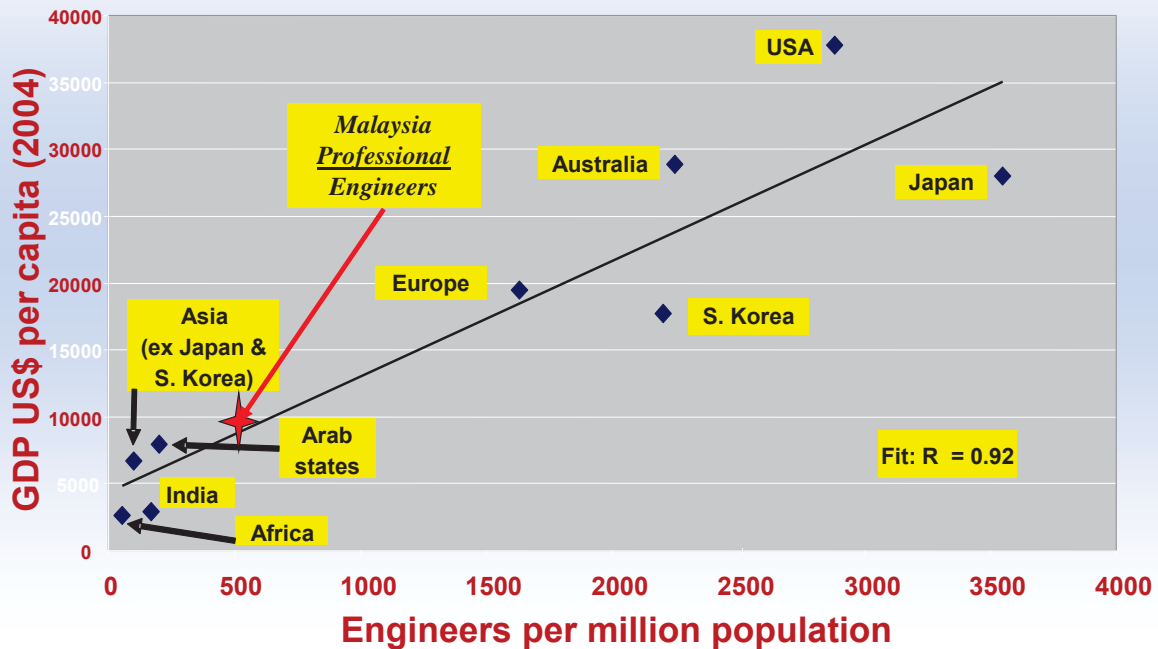
Case of Malaysia - typical



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Why are Engineers Important? Engineers and GDP



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Malaysia needs more engineering professionals for national development



Engineer-Population ratios

	Population	Number of Registered Engineers	Engineer-Population ratio
Malaysia	32 million	180,000	1:178
Japan	126 million	2.5 million <small>(Stats Bureau Japan 2000)</small>	1:50
Germany	82 million	1,000,000	1:82
United Kingdom	60 million	425,000	1:141

Data includes both engineers & engineering technologists

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BEM & The Engineering Profession



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Board of Engineers Malaysia (BEM)

Facilitates the registration of engineers and regulates the professional conduct and practise of registered engineers in order to safeguard the safety and interest of the public.



Institution of Engineers Malaysia (IEM)

A learned institution for practicing engineers in Malaysia. It facilitates networking, technical learning among different groups. Most of its members are graduate and student members.



Board of Engineers Malaysia (BEM)

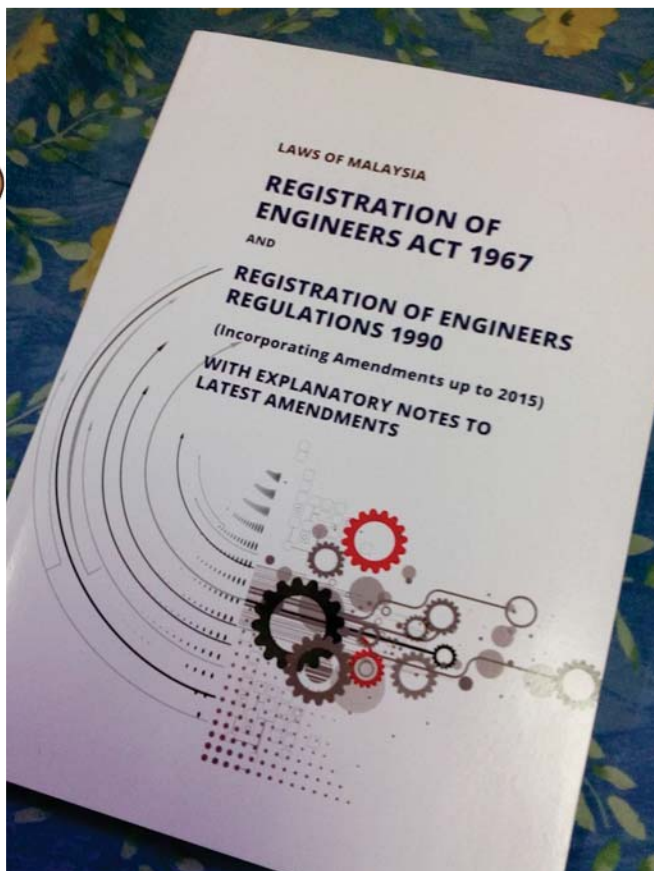
**An independent statutory body
by Act of Parliament**



Board of Engineers Malaysia (BEM)

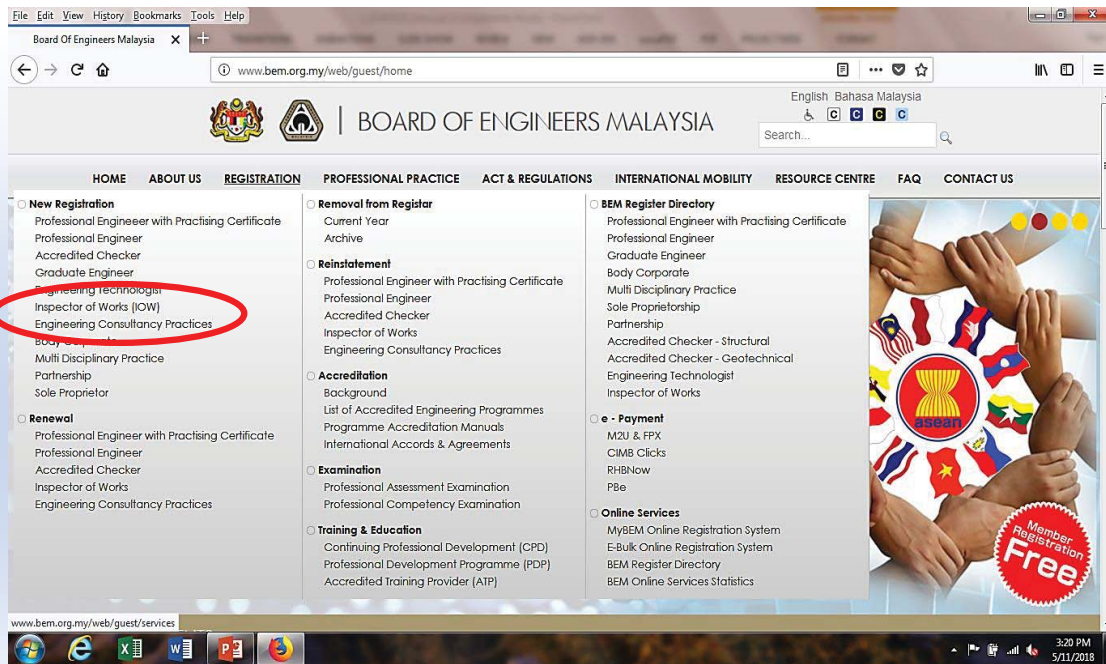
- Formed in **1972**,
under the **Registration of Engineers Act 1967**.
- Latest Amendments enforced **31st July 2015**
- **BEM's primary role is to safeguard the safety and interest of the public:**
 - to facilitate the registration of Engineers, Engineering Technologists, Inspectors of Works, Engineering Consultancy Practices;
 - to regulate the professional conduct and practice of registered persons.

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Available online
at BEM website





BEM website:

<http://www.bem.org.my/web/guest/home>

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Section 2. Interpretation

"professional engineering services" means engineering services and advice in connection with any feasibility study, planning, survey, design, construction, commissioning, operation, maintenance and management of engineering works or projects and includes any other engineering services approved by the Board;

“Engineering works” means all works which include any publicly or privately owned public utilities, buildings, machines, equipment, processes, works or projects that requires the application of engineering principles and data;

The Act regulates **“Engineering work”**.

2015 AMENDMENTS TO REA 1967

The Engineering Team



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REA (1967) & its Regulations - AMENDMENTS 2015

Registers 5 Categories of Registered Persons : *(new in red)*

1. Accredited Checker
2. Professional Engineer with Practising Certificate
3. Professional Engineer
4. Graduate Engineer
5. Engineering Technologist
6. Inspector of Works



BEM now regulates:

THE ENGINEERING TEAM

Accredited Checker

Professional Engineer with Practising Certificate

Professional Engineer

Graduate Engineer

Engineering Technologist

Inspector of Works



**Who is the
Engineering Technologist?
- *The Practical Oriented
Engineer***



Board of Engineers Malaysia

STATISTICS as at 10.01.2020

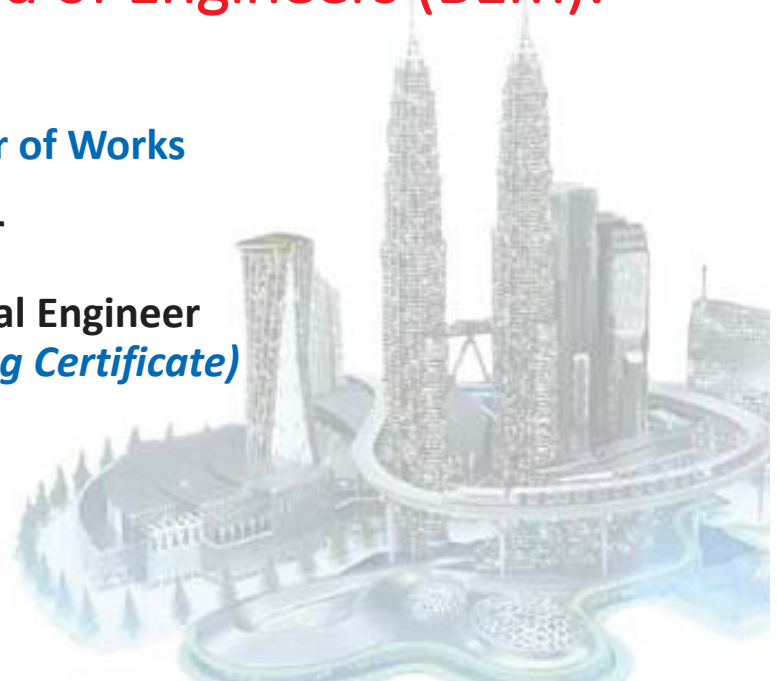
Registered Persons (**Total: 169,037**)

132,683	Graduate Engineers
10,226	Professional Engineers (PE)
10,454	PEs with Practising Certificate
8,848	Engineering Technologists
6,752 74	Inspectors of Works (IOWs) IOWs (intern)

The mission of BEM & the nation is to increase the number of engineering professionals to reach 320k ³⁵

The Engineering Profession in Malaysia is regulated by the Board of Engineers (BEM):

- Registration as Graduate Engineer, Engineering Technologist & Inspector of Works
- Registration as Professional Engineer
- Registration as a licensed Professional Engineer (*Professional Engineer with Practising Certificate*)
- Ownership & Directorship of engineering consultancies



International Recognition of the Engineering Profession in Malaysia



Benchmarked
Against the World's Best





INTERNATIONAL
ENGINEERING
ALLIANCE

Seven
constituent
agreements

Washington Accord
Sydney Accord
Dublin Accord

International Professional Engineers Agreement
International Engineering Technologists Agreement
APEC Engineer Agreement
Agreement for International Engineering Technicians

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WASHINGTON ACCORD
(2009)

SYDNEY ACCORD
(2018)

DUBLIN ACCORD
(2018)

MULTINATIONAL AGREEMENTS FOR THE MUTUAL RECOGNITION OF ENGINEERING, ENGINEERING TECHNOLOGY & ENGINEERING TECHNICIAN EDUCATION PROGRAMMES

Among signatory countries:

- substantial equivalency of accreditation systems



Washington Accord – Signatory since 2019 Sydney & Dublin Accords – Signatories since 2018

- Accepted as a **Full Signatory** after rigorous peer review by other signatories (by USA, Australia, Hong Kong and Ireland).
- Implication:
Mutual recognition of academic programmes that underpin the educational base for Engineering, Engineering **Technologists** and **Engineering Technicians**.
- The qualifications accredited by signatories are recognised by each other as being **substantially equivalent** for practice of engineering at the appropriate level within the engineering team.

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SIGNIFICANCE OF ACCORD MEMBERSHIP

- an endorsement that the engineering education system has demonstrated a
strong, long-term commitment
to quality assurance
in producing engineers, engineering technologists & engineering technicians
ready for industry practice in the international scene.

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THE ENGINEERING TEAM

- Entry level qualifications

1. Engineers

WASHINGTON
ACCORD
(2009)

2. Engineering
Technologists

SYDNEY ACCORD
(2018)

3. Inspectors of Works
(technicians)

DUBLIN ACCORD
(2018)

Engineering TVET

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The mark of advanced engineering nations
is that
engineering TVET is bigger than
conventional engineering

CONVENTIONAL
ENGINEERING

ENGINEERING
TVET

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Conventional Engineering Degrees VS Engineering TVET

What is Engineering TVET?

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TVET

- AKA:
*Apprenticeship Training,
Vocational Education,
Technical Education,
Technical-Vocational Education (TVE),
Occupational Education (OE),
Vocational Education and Training (VET),
Professional and Vocational Education (PVE),
Career and Technical Education (CTE),
Workforce Education (WE),
Workplace Education (WE),
etc.*
 - **What is TVET?** (UNESCO – Website accessed 28.10.2019)
 - **acquisition of knowledge and skills**
- for**
- the world of work**

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What is Engineering TVET ?

- acquisition of knowledge and skills for the world of engineering work

Distribution and Sales Operation, Service & Maintenance Production Engineering Manufacturing Component Design

Test & Evaluation Development & Design Systems Integration Analysis Complex Design & Analysis Theoretical Research

What is Engineering Work?

REA 2015 – Act Definition

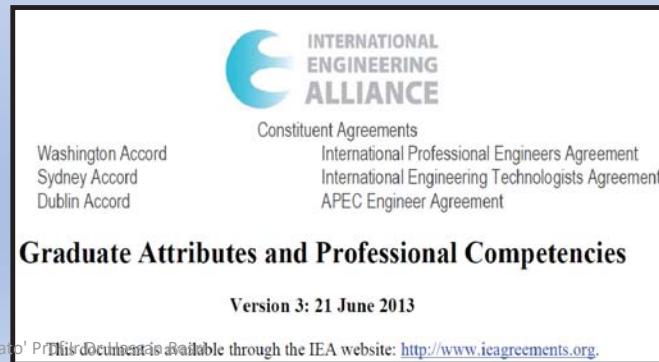
On “Engineering Works”

- – all works...which include public utilities, buildings, machines, equipment, processes, works or projects that require **the application of engineering principles and data.**”

ETAC-BEM Framework for Engineering TVET: *What is Engineering TVET?*

- **TVET of Engineering Nature**

- *Engineering that is of practical orientation, hands-on nature*
- *As defined by competencies & graduate attributes of the International Engineering Alliance (IEA)*
- *...in particular*
the Dublin Accord & Sydney Accord
- *A big portion of TVET is Engineering TVET*
>50%



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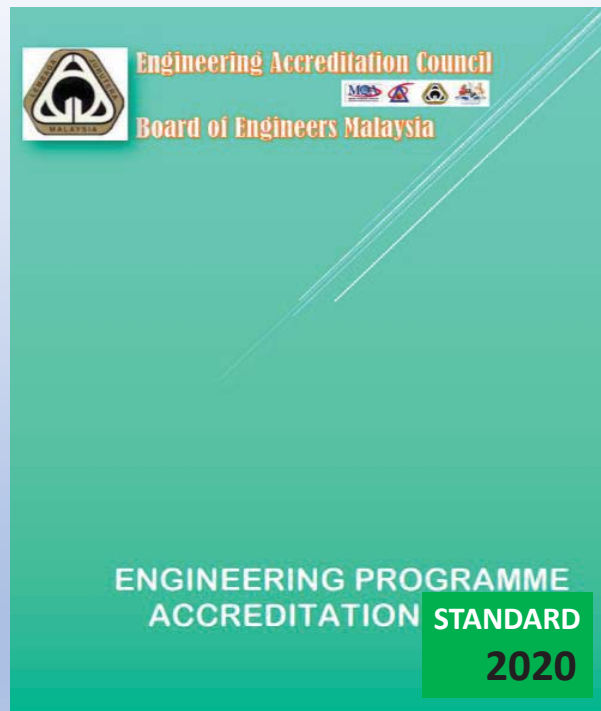
So,
what is the difference?

...between
Conventional Engineering
& Engineering TVET?

Conventional Engineering

EAC Standard

Washington Accord
Equivalency



Engineering TVET

ETAC Standards

Sydney Accord
Equivalency



Dublin Accord
Equivalency





Constituent Agreements

Washington Accord
Sydney Accord
Dublin Accord

International Professional Engineers Agreement
International Engineering Technologists Agreement
APEC Engineer Agreement

Graduate Attributes and Professional Competencies

Version 3: 21 June 2013

This document is available through the IEA website: <http://www.ieagrements.org>.

What differentiates

Engineering TVET from Conventional Engineering

- Overall, it is more practice-oriented.
 - Outcomes determined by work-place requirements
- Student intake
 - Access to wider pool of school leavers
 - Minimum 2 credits:
maths & one subject in the natural sciences (incl. general science) or of technical nature (incl. SKM)
 - Extends to SKM, APEL A, SVM & vocational certs
- Curriculum
 - Min 50% of engineering content practice-oriented (up to 100%, the more the better)

.....What differentiates Engineering TVET from Conventional Engineering

- Curricular focus
 - Math components are more practical than theoretical in nature (compared to conventional)
 - Deep theories in maths & science not necessary
 - Typical components:
 - applied algebra & trigonometry
 - applied calculus
 - relevant applied sciences
 - Work-based learning (WBL) encouraged
 - Possible - all of programme delivery in industry

Eng. Technology Degree (Sydney Accord) The curriculum content should cover the following:

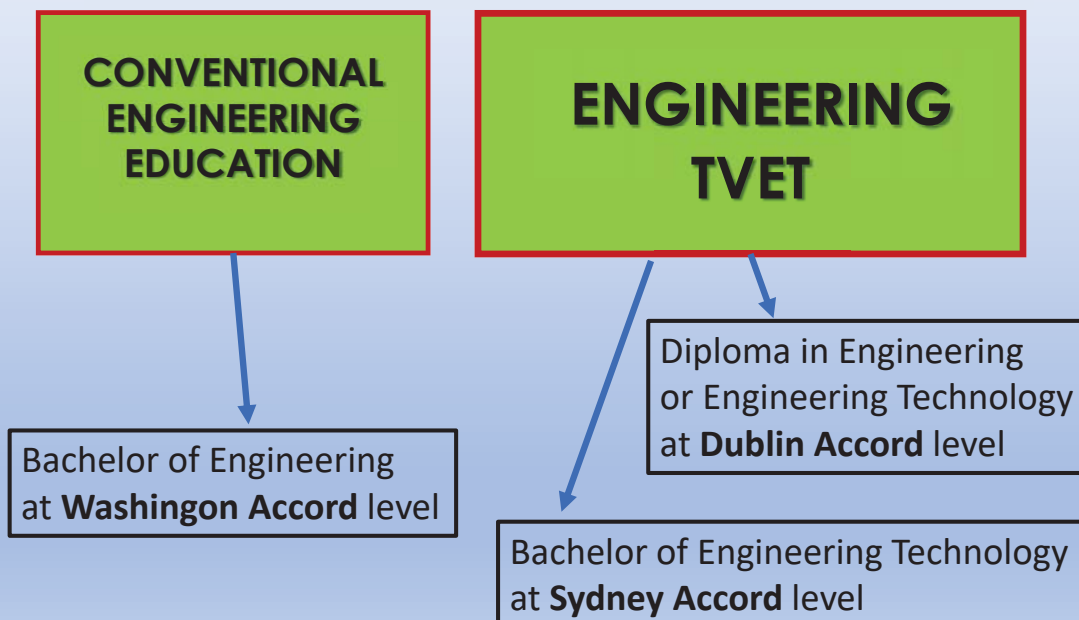
- **Applied mathematics, applied science, applied engineering principles, skills and tools (computing experimentation) appropriate to the discipline of study;**
- engineering practical components;
- integrated training in professional engineering practice, including management and professional ethics;
- laboratory work to complement the science, computing and engineering theory;
- industrial training – training in engineering technology in a professional engineering-practice environment;
- exposure to engineering practice within the campus learning environment;
- relevant tutorial classes to complement the lectures; and
- final year project.

Eng. Technician Diploma (Dublin Accord)

The curriculum content should cover the following:

- **applied Mathematics, applied science, applied engineering principles**, skills and tools (computing, experimentation) appropriate to the discipline of study, where applied mathematics shall, **at a minimum, include algebra and trigonometry** at a level appropriate to the student outcomes and program educational objectives;
- engineering and engineering technology practical components;
- integrated training in professional engineering practice, including management and professional ethics;
- laboratory work to complement the science, computing and engineering theory;
- industrial training – training in engineering technology in a professional engineering-practice environment;
- exposure to engineering practice within the campus learning environment;
- relevant tutorial classes to complement the lectures; and
- final project.

Engineering TVET should be bigger than conventional engineering



Eng Technologists - - - - - Engineers



Comparison of jobs suitability for graduates according to ASME

Some countries do not differentiate
e.g. Japan

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Engineering TVET

- **Engineering education has always been of “TVET” nature** (except in the Anglo-Saxon world since the 60s)

“ In October 1957, the Soviet Union launched Sputnik. The world’s first artificial satellite was only as big as a beach ball, but it produced outsized effects. Sputnik not only spurred the US-USSR space race but also drove scientific, technological, political, and military developments.”

“Among those was a change in engineering education. To develop engineers who could help the country reach the stars, academia shifted away from a hands-on focus to a more theoretical one. Engineering programs increased their emphasis on math, physics, and engineering sciences and removed laboratory courses. Engineering technology (ET) programs—offering both associate’s and baccalaureate degrees—took on some of what engineering had dropped.”

Kaplan-Leiserson 2017

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Legal Framework for Engineering Education

- incl. *Engineering Diploma*
& *Engineering Technology Degree*

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Legal Framework

- **Harmonisation of Accreditation**
*via the legal frameworks
of the MQA Act & The Engineers Act*
- Under the Malaysia Qualifications Agency (MQA) Act:
*Professional bodies are empowered fully for
accreditation of related study programmes.*
 - **ETAC-BEM is the *Joint Technical Committee (JTC)***
Articles 51-52 of the MQA Act
 - *Full mandate (except application process via MQA)
given to the professional bodies*
 - **BEM has full mandate**
*over Diploma and Degree programmes
for engineering and engineering technology*

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MQA Act

Joint Technical Committee

51. (1) A Joint Technical Committee consisting of representatives of the relevant professional body, an officer of the Agency and such other persons as may be deemed necessary by the relevant professional body shall be established by the relevant professional body for the purpose of—

- (a) considering an application for accreditation under subsection 50(1);
- (b) making recommendations to grant or refuse the application for accreditation under subsection 52(1);
- (c) making recommendations for imposing conditions under section 54;
- (d) entering and conducting an institutional audit under subsection 52(3); and
- (e) making recommendations for the revocation of accreditation under section 55.

(2) The representatives of the relevant professional body and the officer of the Agency in the Joint Technical Committee established under subsection (1) may differ as between different professional programmes or professional qualifications.

Power to grant or refuse accreditation

52. (1) After having considered the recommendation of the Joint Technical Committee under section 51, the relevant professional body may—

- (a) approve the granting of accreditation; or
- (b) refuse the granting of accreditation, stating the grounds for refusal.

(2) Where accreditation is granted under paragraph (1)(a), the Agency shall issue a certificate of accreditation to the higher education provider upon payment of the prescribed fees and shall enter the particulars of the certificate into the Register.

The Registration of Engineers Act

Function of the Board

"4(1)(ef) to appoint a body consisting of members from the Board, Professional Engineers and other persons as may be determined by the Board to advise the Government and the public on matters relating to engineering education, including the certification of such programmes;"

Engineering Accreditation Council Malaysia
Established in 2000

EAC

**JTC of the MQA Act
& body delegated by BEM
for
Conventional Engineering Degrees
(Washington Accord)**

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Engineering Technology Accreditation Council Malaysia
Established in 2013

ETAC

**JTC of the MQA Act
& body delegated by BEM
Covering**

ENGINEERING TVET:

- **Diploma in Engineering/Engineering Technology
(Dublin Accord)**
- **Degree in Engineering Technology
(Sydney Accord)**

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Historical Development

Engineering Technology and Engineering Technician Study, commissioned by BEM

2003

2006

The Future of Engineering Education commissioned by the Ministry of Higher Education

- 2013 Establishment of BEM Engineering Technology Accreditation Council (ETAC)
- 2007 Establishment of Malaysian Qualification Agency (MQA, replaced LAN)
- 2000 Establishment of BEM Engineering Accreditation Council, (EAC)
- 1996 Establishment of National Accreditation Board (LAN)
- 1967 IEM & BEM conducted joint accreditation
- 1959 Institution of Engineers Malaysia (IEM) conducted accreditation
- 1957 Public Services Department (PSD) conducted accreditation

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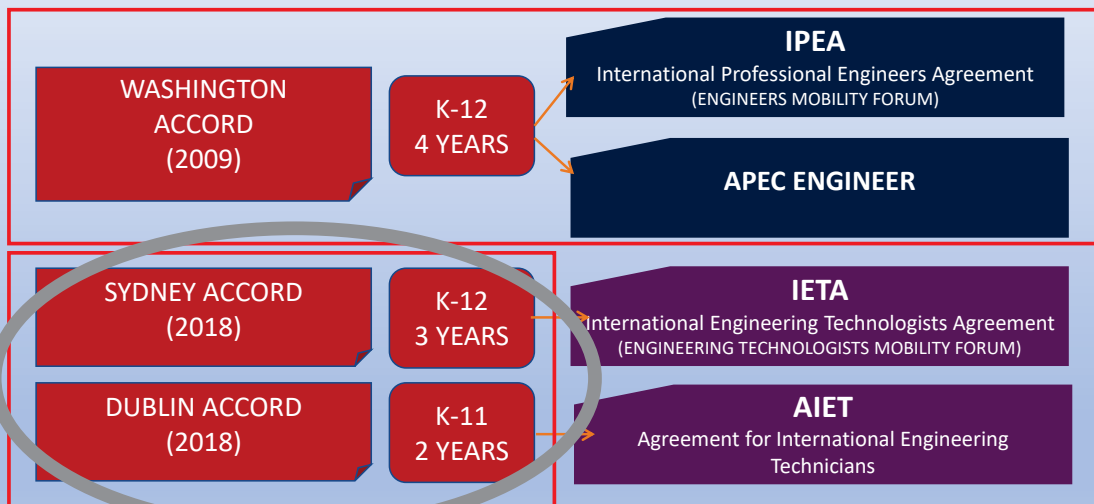
YOU WILL HAVE PATHWAYS TO BECOME AN INTERNATIONALLY RECOGNISED PROFESSIONAL ENGINEER !!

INTERNATIONAL ENGINEERING ALLIANCE (IEA)

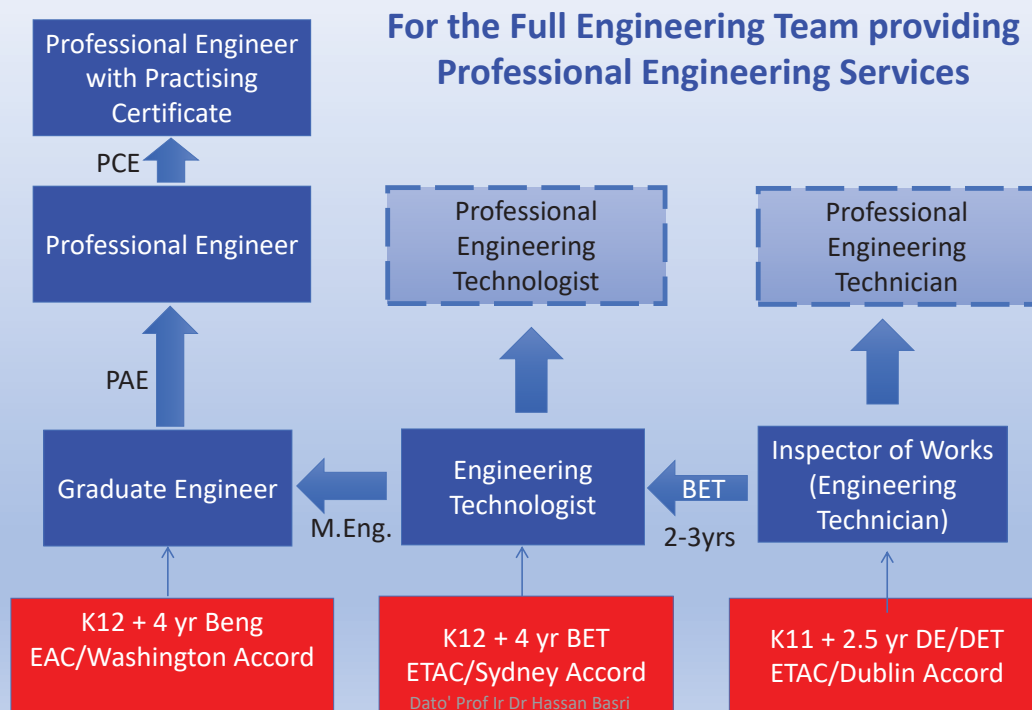
formerly known as
INTERNATIONAL ENGINEERING MEETING (IEM)

EDUCATION ACCORDS

PRACTICE AGREEMENTS



PROFESSIONAL PATHWAYS



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Reasons to Become a Professional Engineer

There are really many reasons but most will fall in four categories .

1. A legal necessity.
2. Improved employment security.
3. Better opportunities for advancement.
4. Personal satisfaction.



Engineers are Important

“Engineers apply science and technology to create useful things for human needs

Let me challenge all of you to help mobilize global engineering and technology to tackle the interlocking crises of hunger, disease, environmental degradation and conflict that are holding back the developing world.”



Kofi Annan, 2002



CONCLUDING...

The Engineering Profession in Malaysia is now recognised worldwide:

*Benchmarked and Accredited
with the
International Gold Standard*



It is the profession of Choice !!

THANK YOU



“Committed To Engineering Excellence”

BOARD OF ENGINEERS MALAYSIA
Tingkat 11 & 17, Blok F Ibu Pejabat JKR
Jalan Sultan Salahuddin, 50580 Kuala Lumpur
<http://www.bem.org.my>
enquiry@bem.org.my or complaint@bem.org.my.
Tel: 03-26912090; 03-26107095/96 Fax: 03-26925017



BEM


CHOOSING THE RIGHT QUALIFICATION FOR YOUR ENGINEERING CAREER

Presenter:
Prof Ir. K S Kannan
Applications Committee Member

Date: September 15, 2021
Venue: Zoom

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Outline of Presentation

- THE RIGHT QUALIFICATIONS FOR ENGINEERING CAREER**
- Registration of Engineers Act
- Qualifications required for registered persons
- Entry Requirements
- 3-year BEng/BSc Engineering Programs

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REGISTRATION OF ENGINEERS ACT, 1967 (Latest amendment 2015)

PURPOSE OF THE ACT

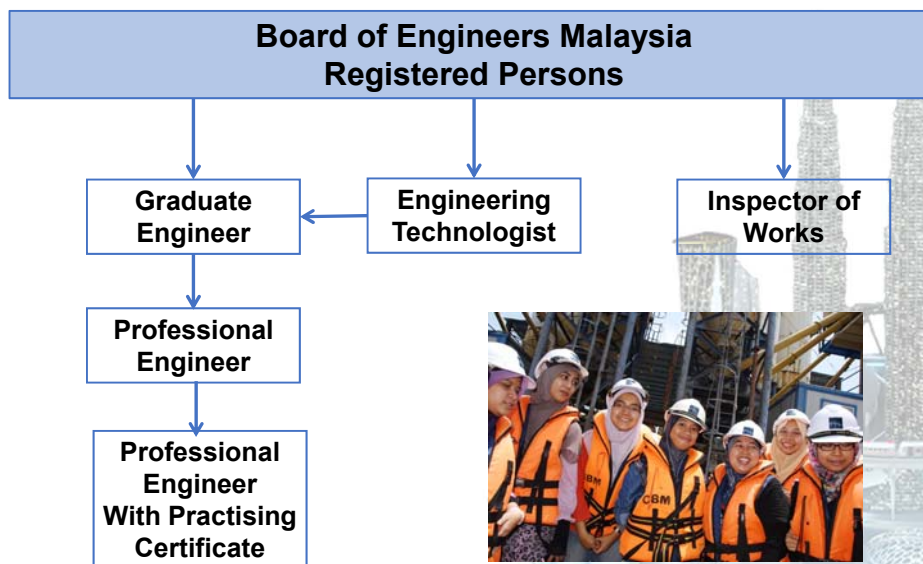
- To protect the public by legislative control so that the practice of engineering, which has a bearing on **public safety, health and welfare**, can only be carried out by **licensed** professional engineers.
- To create a regulatory body with mandate to carry out **licensing** of professional engineers and regulation of the profession;
- To set regulations pertaining to the practice of engineering; **qualifications for licensing; and code of professional conduct for registered engineers;**
- To maintain public confidence in the standard of services provided by **licensed professional engineers**
- To designate the Board as the authority to represent Malaysia on provision of **Engineering services under GATT's classification**

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REGISTERED PERSONS



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Graduate Engineer

Graduate engineers are most often assigned to teams supervised by experienced **engineers**.

A graduate engineer may find employment in a variety of industries depending on their background, engineering specialty, and training. As a graduate engineer in the field of **civil engineering**, for instance, you **work on scientific projects as part of a team**, design civil grading, and prepare reports. In a graduate **mechanical engineering** role, you are involved in **upgrade of machinery**, coordinating technical project components, and **participating in team meetings**.



Regardless of your specialty, as a graduate engineer, you get to build work experience in lower level roles while **working with veterans** in your chosen field.

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BEM GRADUATE ENGINEERING BRANCHES & SUB-BRANCHES

MAIN BRANCH	CIVIL	MECHANICAL	ELECTRICAL	CHEMICAL
1	Building	Aerospace	Computer	Environmental
2	Construction	Agricultural	Electronic	Petroleum
3	Environmental	Automotive	Communication	Process (Polymer, Pharmaceutical, Food)
4	Geotechnical	Building Services		Nuclear
5	Mining	Manufacturing		
6	Structural	Marine		
7	Transportation	Material		
8		Mechatronic		
9		Metallurgy		
10		Mining		
11		Naval Architecture		
12		Nuclear		

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Engineering Technologist

An engineering technologist is dedicated to the **development, design, and implementation** of engineering and technology. Engineering technology education is more of a **broad specialized and applied engineering discipline** compared to the generalized and theoretical engineering degree education. Engineering Technologists often work as entry-level engineer on projects by **applying engineering principles and technical skills**.



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Inspector of Works

Subsection 10E of the 2015 Amendment states that a person who holds any qualification which is recognized by the Board shall be entitled on application to be registered as an Inspector of Works. The Inspector of Works, employed to look at the interest of the client, is the person doing **standing supervision on site** to ensure that the structural, mechanical and electro-technical aspects of building constructions are carried out in accordance with plans and specifications, to the required standards.



Inspectors of works may specialize in enforcing the laws and regulations relating to **design, construction and building procedures**, representing building societies and other financial institutions to ensure that buildings are erected in accordance with their requirements and the mortgage agreement, ensuring compliance with specifications for construction, assembly and installation of components and products in the **construction and in manufacturing industries**.

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Level of Knowledge of Engineering Sciences for the three categories are as follows

For Graduate Engineers	For Engineering Technologists	For Inspector of Works (IOW)
Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.	Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to defined and applied engineering procedures, processes, systems or methodologies.	Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to wide practical procedures and practices.

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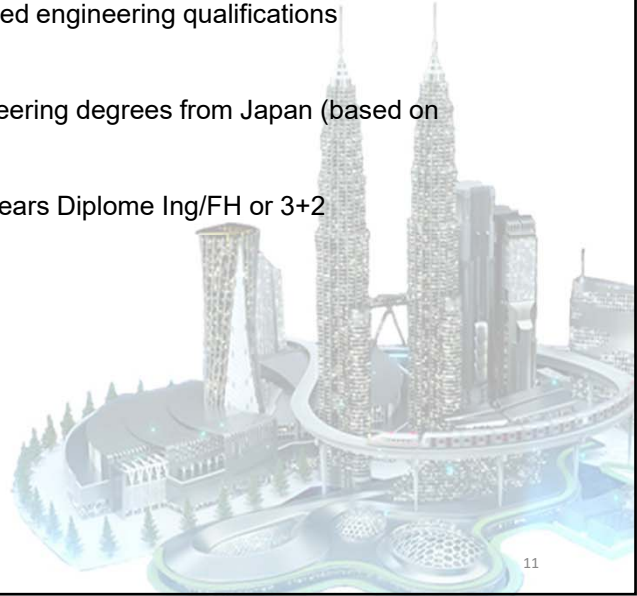
QUALIFICATIONS ACCEPTED

For Graduate Engineers:

- A 4-year engineering degree from a Malaysian university which has been accredited by the EAC of BEM
- An accredited 4-year engineering degree from an overseas university which is a signatory to the Washington Accord (WA).
- BEM-Pre EAC list (including UK 3 years qualification until 2000)
- Licensed Aircraft Engineer with Category C
- Marine Engineer with CoC Class 1 (1st or Chief Engineer)

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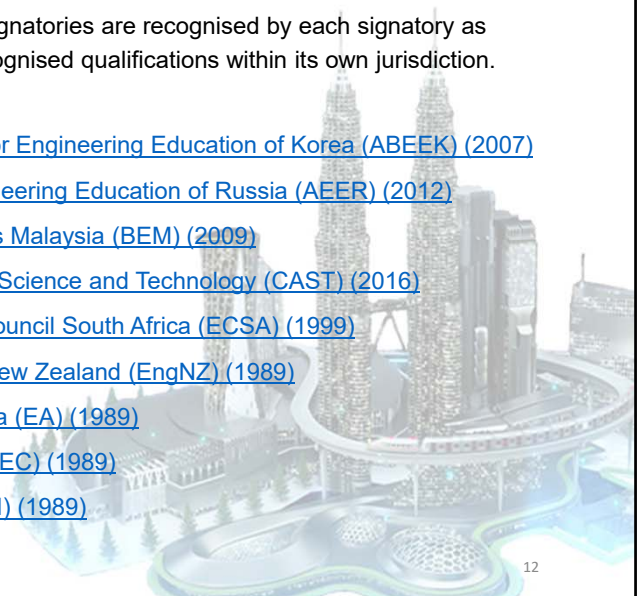
- 4 years or more JPA-BEM's recognised engineering qualifications (Russia/France CTI)
- 4 years Monbusho recognised engineering degrees from Japan (based on intake until June 2009)
- FEANI Index or list (EEED) (4 or 5 years Diplome Ing/FH or 3+2 qualifications in a related discipline)




WASHINGTON ACCORD (WA) SIGNATORIES

Qualifications accredited or recognized by other signatories are recognised by each signatory as being substantially equivalent to accredited or recognised qualifications within its own jurisdiction.


- **Korea** - Represented by [Accreditation Board for Engineering Education of Korea \(ABEEK\) \(2007\)](#)
- **Russia** - Represented by [Association for Engineering Education of Russia \(AEER\) \(2012\)](#)
- **Malaysia** - Represented by [Board of Engineers Malaysia \(BEM\) \(2009\)](#)
- **China** - Represented by [China Association for Science and Technology \(CAST\) \(2016\)](#)
- **South Africa** - Represented by [Engineering Council South Africa \(ECSA\) \(1999\)](#)
- **New Zealand** - Represented by [Engineering New Zealand \(EngNZ\) \(1989\)](#)
- **Australia** - Represented by [Engineers Australia \(EA\) \(1989\)](#)
- **Canada** - Represented by [Engineers Canada \(EC\) \(1989\)](#)
- **Ireland** - Represented by [Engineers Ireland \(EI\) \(1989\)](#)



- 
- **Hong Kong China** - Represented by [The Hong Kong Institution of Engineers \(HKIE\) \(1995\)](#)
 - **Chinese Taipei** - Represented by [Institute of Engineering Education Taiwan \(IEET\) \(2007\)](#)
 - **Singapore** - Represented by [Institution of Engineers Singapore \(IES\) \(2006\)](#)
 - **Sri Lanka** - Represented by [Institution of Engineers Sri Lanka \(IESL\) \(2014\)](#)
 - **Japan** - Represented by [JABEE \(2005\)](#)
 - **India** - Represented by [National Board of Accreditation \(NBA\) \(2014\)](#)
 - **United States** - Represented by [Accreditation Board for Engineering and Technology \(ABET\) \(1989\)](#)
 - **Turkey** - Represented by [Association for Evaluation and Accreditation of Engineering Programs \(MÜDEK\) \(2011\)](#)
 - **United Kingdom** - Represented by [Engineering Council United Kingdom \(ECUK\) \(1989\)](#)
 - **Costa Rica** - Represented by [Colegio Federado de Ingenieros y de Arquitectos de Costa Rica \(CFIA\) \(2020\)](#)
 - **Pakistan** - Represented by [Pakistan Engineering Council \(PEC\) \(2017\)](#)
 - **Peru** - Represented by [Instituto de Calidad y Acreditacion de Programas de Computacion, Ingenieria y Tecnologia \(ICACIT\) \(2018\)](#)

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For Engineering Technologist

- 
- ETAC accredited ET Bachelor's degree (4 years)
 - MQA accredited ET Bachelor's degree (3/4 years) where MQA accreditation was awarded between January 1, 2012 and January 1, 2017
 - MQA accredited E/T/AS Bachelor's degree (3/4 years) until intake of January 1, 2017

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- Sydney Accord (SA) signatories ET/T Bachelor's degree (4 years)
- Sydney Accord (SA) signatories ET/T Bachelor's degree (3 years); UK 3-years program may be registered as ET provided they are listed under CEng; IEng
- International accrediting body like IASA (aircraft)/EASA Category B with type rated
- Marine CoC Class 2



SYDNEY ACCORD (SA) SIGNATORIES

Qualifications accredited or recognized by other signatories are recognised by each signatory as being substantially equivalent to accredited or recognised qualifications within its own jurisdiction.

- **Australia** - Represented by [Engineers Australia \(EA\) \(2001\)](#)
- **Canada** - Represented by [Canadian Council of Technicians and Technologists \(CCTT\) \(2001\)](#)
- **Chinese Taipei** - Represented by [Institute of Engineering Education Taiwan \(IEET\) \(2014\)](#)
- **Hong Kong China** - Represented by [The Hong Kong Institution of Engineers \(HKIE\) \(2001\)](#)
- **Ireland** - Represented by [Engineers Ireland \(EI\) \(2001\)](#)
- **Korea** - Represented by [Accreditation Board for Engineering Education of Korea \(ABEEK\) \(2013\)](#)
- **South Africa** - Represented by [Engineering Council South Africa \(ECSA\) \(2001\)](#)
- **United Kingdom** - Represented by [Engineering Council United Kingdom \(ECUK\) \(2001\)](#)
- **United States** - Represented by [Accreditation Board for Engineering and Technology \(ABET\) \(2009\)](#)
- **Malaysia** - Represented by [Board of Engineers Malaysia \(BEM\) \(2018\)](#)
- **New Zealand** - Represented by [Engineering New Zealand \(EngNZ\) \(2001\)](#)



For Inspector of Works (IOW)

- Diploma in Engineering accredited by BEM's Engineering Accreditation Council (ETAC)
- Diploma in Engineering accredited by MQA (before December 31, 2018)
- Diploma in Engineering accredited by professional body who are signatory of Dublin Accord (DA)
- CAAM/DCAM Aircraft Maintenance License – Type Category B (without type rating)
- Certificate of Competency as Marine Engineer – Third/Fourth (Junior Marine Engineer) – or Holder of Fourth Class Certificate of Competency as Marine Engineer

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DUBLIN ACCORD (DA) SIGNATORIES

Qualifications accredited or recognized by other signatories are recognised by each signatory as being substantially equivalent to accredited or recognised qualifications within its own jurisdiction.

- **Australia** - Represented by [Engineers Australia \(EA\) \(2013\)](#)
- **Canada** - Represented by [Canadian Council of Technicians and Technologists \(CCTT\) \(2002\)](#)
- **Ireland** - Represented by [Engineers Ireland \(EI\) \(2002\)](#)
- **New Zealand** - Represented by [Engineering New Zealand \(EngNZ\) \(2013\)](#)
- **Korea** - Represented by [Accreditation Board for Engineering Education of Korea \(ABEEK\) \(2013\)](#)
- **South Africa** - Represented by [Engineering Council South Africa \(ECSA\) \(2002\)](#)
- **United Kingdom** - Represented by [Engineering Council United Kingdom \(ECUK\) \(2002\)](#)
- **United States** - Represented by [Accreditation Board for Engineering and Technology \(ABET\) \(2013\)](#)
- **Malaysia** - Represented by [Board of Engineers Malaysia \(BEM\) \(2018\)](#)

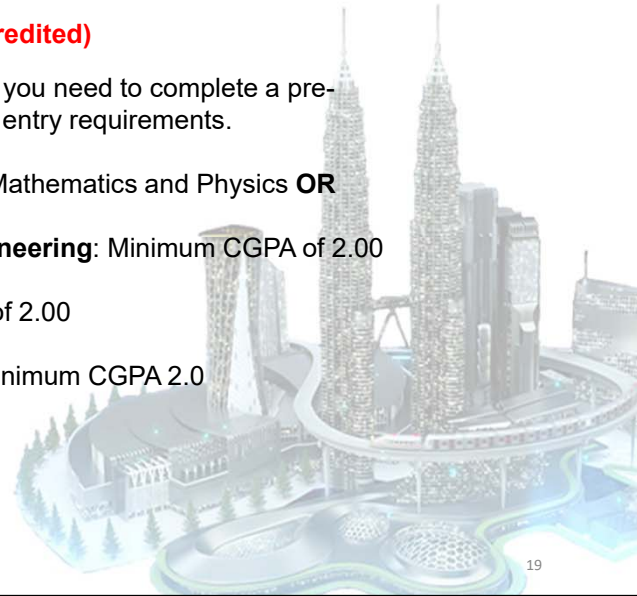
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ENTRY QUALIFICATIONS

For 4-year BEng degree (EAC accredited)

To pursue a Degree in Engineering, you need to complete a pre-university programme and meet the entry requirements.

- **STPM:** Minimum 2Cs including Mathematics and Physics **OR**
- **Foundation in Science or Engineering:** Minimum CGPA of 2.00
- **Matriculation:** Minimum CGPA of 2.00
- **Diploma in Engineering** with minimum CGPA 2.0

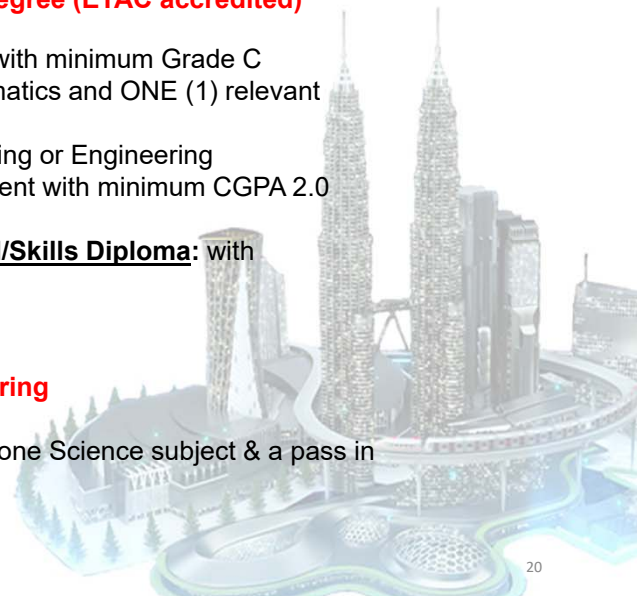


For 4-year BEngTech degree (ETAC accredited)

- **STPM:** or equivalent with minimum Grade C (CGPA 2.0) in Mathematics and ONE (1) relevant science subject **OR**
- **Diploma:** in Engineering or Engineering Technology or equivalent with minimum CGPA 2.0 **OR**
- **Technical/Vocational/Skills Diploma:** with minimum CGPA 2.0

For Diploma in Engineering

- **SPM:** 3C (incl. Math, one Science subject & a pass in English)



For those who are interested to choose Engineering as a career. Please choose engineering degree programmes that are accredited by BEM.

Visit the engineering/engineering technology accredited website for details:

Accredited Engineering Degree Programme:

http://www.eac.org.my/web/list_accruited.html

Accredited Engineering Technology Degree Programme

<http://etac.org.my/list-accreditation-for-bachelor/>

Accredited Engineering Technology Diploma Programme

<http://etac.org.my/list-acreditation-for-diploma/>

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3-YEAR BEng or BSc ENGINEERING PROGRAMMES

- BEM does not recognize the 3-year engineering programme.
- Hence accreditation by EAC is not carried out
- ***Up to now, BEM has been accepting the 3-year engineering degree topped up by a Master's in the same field as the basic degree, The combined curricula of both Bachelors AND Masters programmes must fulfil the required core courses requirements for that branch of engineering, and these are evaluated on case to case basis.***
- **Topping-up by Master's for the local 3-year BEng degrees will not be accepted from 1st January, 2022**

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BEM's POLICY

Beginning **1st January 2022**, graduates of local B.Eng. or B.Sc.Eng. programmes will be required to take a **2-year top-up Graduate Assessment Program (GAP)** from designated local universities in order to fulfil the requirements for Graduate Engineer (GE) registration.

This new policy will be implemented for a two year period and will **end on 31st December 2023**.

After this date, it is intended that such 3-year engineering programmes will no longer be considered at all by BEM even with top-up programmes. Hence **beginning 1st January 2024**, graduates of local 3-year B.Eng. or B.Sc. Eng. programmes will **no longer have any pathway** to be registered as Graduate Engineers with BEM.

The implementation of this new policy shall be based on dates of enrolment into the 2-year top-up programme, NOT the application or graduation dates. For example, the new policy will cover the applicant who commences the 2-year top-up programme on or before 31st December 2023, but NOT on or after 1st January 2024.

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LIST OF ABBREVIATIONS

BEM – Board of Engineers Malaysia	FH – Fachhochschule (German Tertiary Education Institution)
CAAM – Civil Aviation Authority of Malaysia	GAP – BEM Graduate Assessment Program
CEng – Chartered Engineer	GATT – General Agreement on Trades and Tariff
CGPA – Cumulative Grade Point Average	IASA – International Aviation Safety Assessment
CoC – Certificate of Competency	IEng – Incorporated Engineer
CTI – French Engineering Degree Commission	FEANI – Federation of Professional Engineers (Europe)
DA – Dublin Accord	FH – Fachhochschule (German Tertiary Education Institution)
DCAM – Department of Civil Aviation Malaysia	MQA – Malaysian Qualifications Agency
EAC – Engineering Accreditation Council	JPA – Jabatan Perkhidmatan Awam (Public Service Department)
EASA – Certification of Aircraft in the EU	SA – Sydney Accord (for technologists)
EEED – European Engineering Education Database	SPM – Sijil Pelajaran Malaysia (Malaysian Certificate of Education)
ETAC – Engineering Technology Accreditation Council	STPM – Sijil Tinggi Persekolahan Malaysia (Malaysian Higher School Certificate)
ET – Engineering Technology/Technologist	WA- Washington Accord
FEANI – Federation of Professional Engineers (Europe)	

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THANK YOU



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