

ENGINEERING COMPETENCY DEVELOPMENT

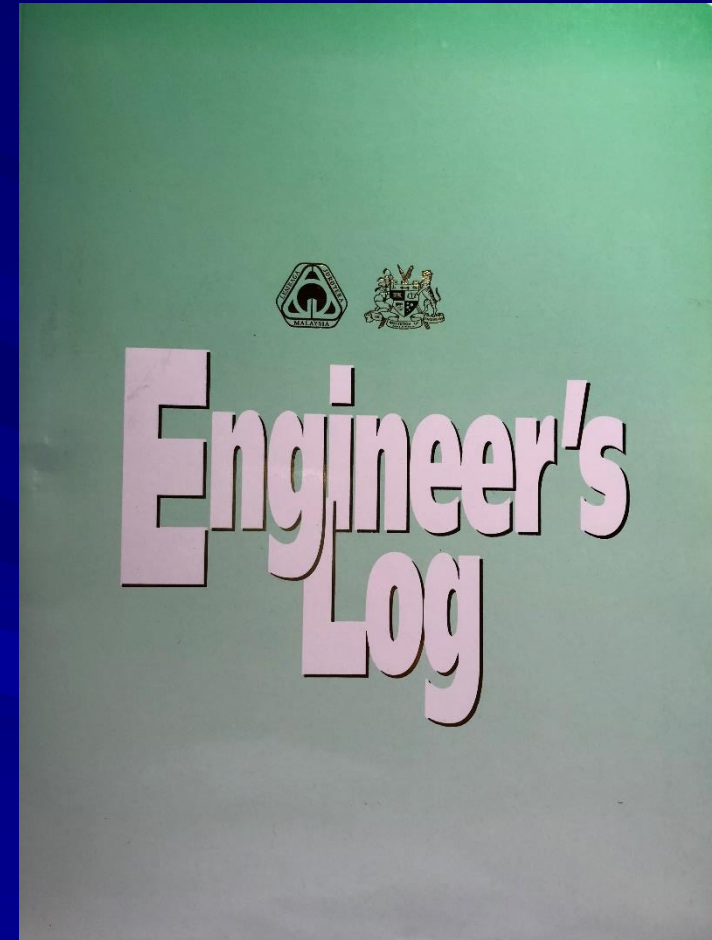
IEM Mentor-Mentee Engagement

13 July 2019

9:00 a.m. – 1:00 p.m.

**Previously
known as the**

**Log Book
Training Scheme**



ENGINEERING COMPETENCY DEVELOPMENT SUB-COMMITTEE

DISCIPLINE	MEMBER
Petroleum	Ir. Abdul Razak bin Yakob (Chairman)
Chemical	Ir. Juares Rizal bin Abdul Hamid (Advisor)
	Ir. Razmahwata Mohd Razalli
	Prof. Ir. Dr. Tee Tiam Ting
Electrical & Electronics, Telecommunications, Biomedical, Mechatronics	Prof. Ir. Wong Hin Yong (Previous Chairman)
	Ir. Mohd. Azha bin Abu Samah
	Ir. Lim Kim Ten
Mechanical	Ir. Al-Khairi Mohd. Daud
	Prof. Madya Ir. Dr. Abdul Talib
	Ir. Syed Nguib bin Syed Mohamed
Civil & Structural	Ir. Dr. Anuar Kasa
	Ir. Han Seng Kong

IEM Secretariat

Puan Halimah Musa

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Important Notes

EVENT	IMPLICATIONS	EFFECTIVE DATE
1. Changes to Registration of Engineers Act 1967 (Amendment 2015)	2 categories of Professional Engineers: <ul style="list-style-type: none">• Professional Engineers (PE)• Professional Engineers with Practicing Certificate (PEPC)	31 July 2015
2. Replacement of IEM Conventional P.I with IEM Enhanced P.I.	IEM no longer accept new P.I applicants to take Conventional P.I.	1 January 2018
2. Introduction of IEM Structured Training Program	Made possible for graduate engineers without design experience to have industry-typical & generic work competency elements to meet IEM minimum exposure in Design/Office for the PI candidacy	Ongoing

What We Will Cover

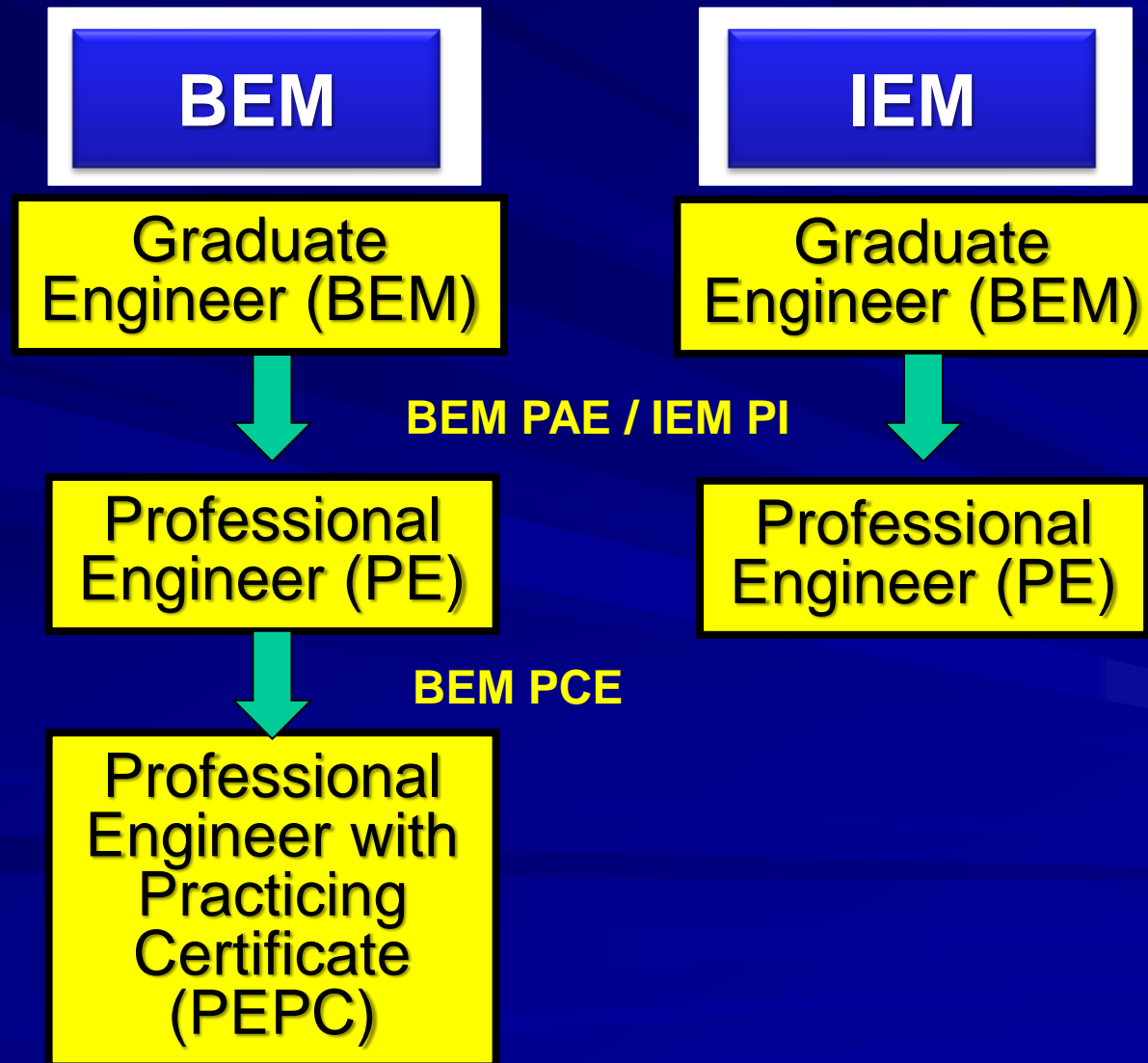
	TOPIC	SPEAKER
1.0	Overview on Route to M.I.E.M. and Professional Engineer	Ir. Mohd. Azha bin Abu Samah
2.0	Highlights on IEM P.I. Process	Ir. Mohd. Azha bin Abu Samah
3.0	The New IEM Log Book	Ir. Han Seng Kong
4.0	IEM ECD Mentorship Program	Ir. Han Seng Kong
5.0	Briefing on IEM Structured Training Program	Ir. Razmahwata Mohd Razalli
6.0	Q & A	All Committee

1.0

**Route to M.I.E.M. &
Professional Engineer**

Concept of BEM Registration

(Effective 2016 Registration)



Board of Engineers Malaysia

Statistics of Registered Engineers in Malaysia as at 23 February 2019

STATISTICS

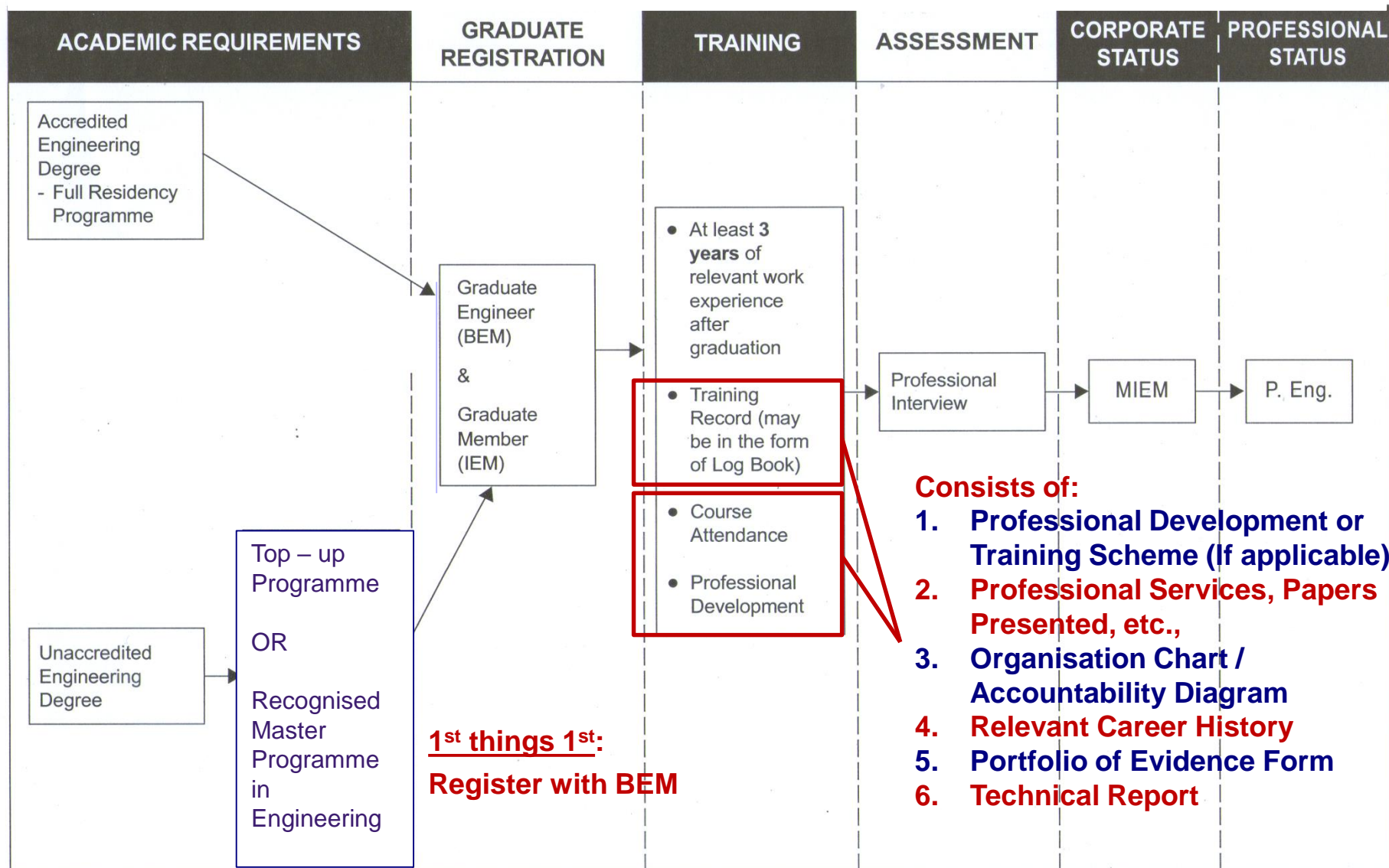
Individual

:: Professional Engineer with Practising Certificate	9272
:: Professional Engineer	3139
:: Accredited Checker Structural	14
:: Accredited Checker Geotechnical	15
:: Graduate Engineer	116202
:: Engineering Technologist	4105
:: Inspector of Works	3609

Consultancy Company

:: Body Corporate	1080
:: Multidisciplinary	48
:: Partnership	220
:: Sole Proprietorship	1141

ROUTE TO M.I.E.M AND PE (TIER 1 PROFESSIONAL ENGINEER) STATUS

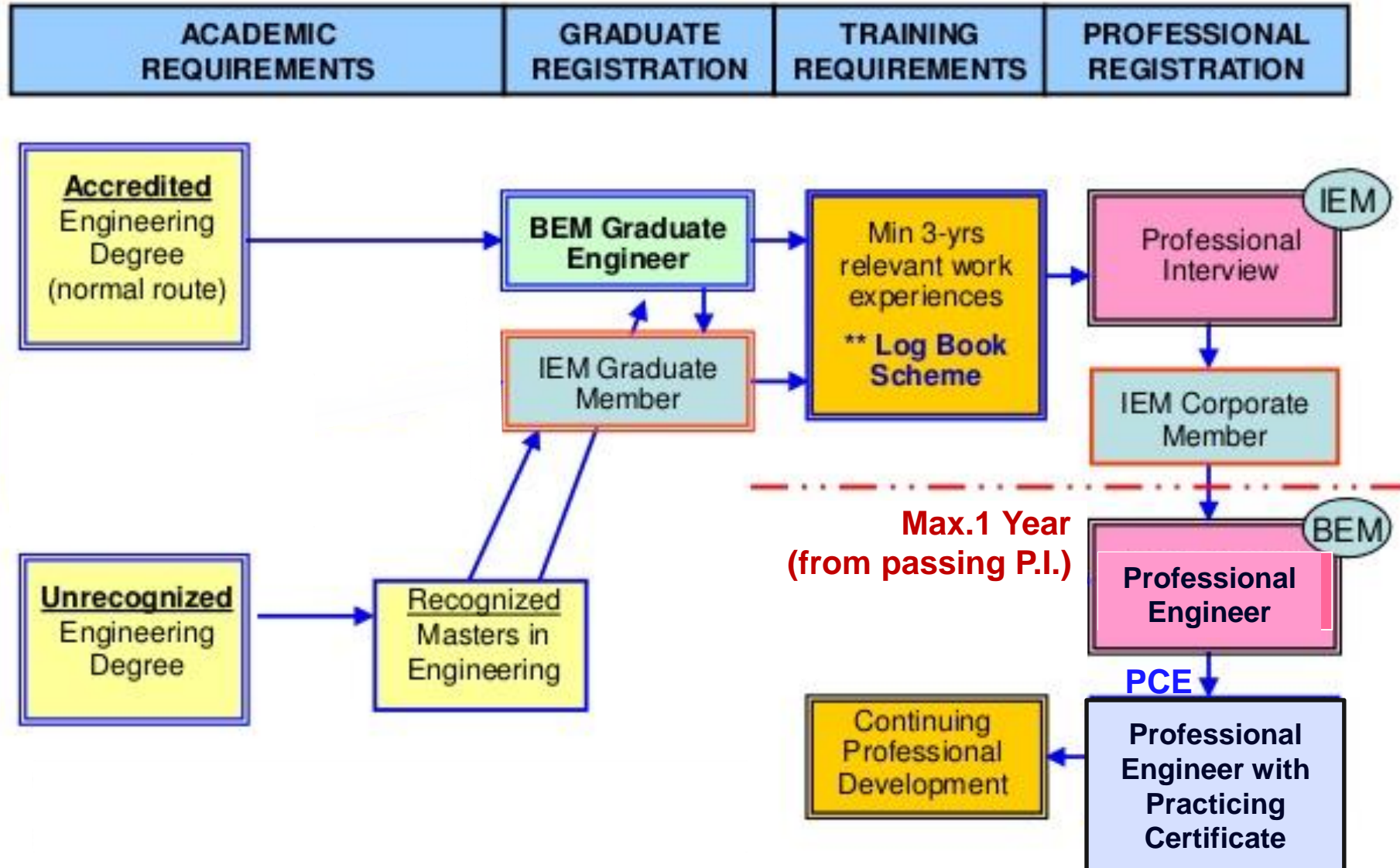


- Consists of:**
1. Professional Development or Training Scheme (If applicable)
 2. Professional Services, Papers Presented, etc.,
 3. Organisation Chart / Accountability Diagram
 4. Relevant Career History
 5. Portfolio of Evidence Form
 6. Technical Report



Institution of Engineers
Malaysia

Route to MIEM / Professional Engineer





LEMBAGA JURUTERA MALAYSIA

TEKNOLOGIS KEJURUTERAAN

JURUTERA PROFESSIONAL

JURUTERA SISWAZAH

SARJANA MUDA
TEKNOLOGI
KEJURUTERAAN
(DIKTIRAF LJM)

Sarjana Kejuruteraan yang berkaitan
Secara "Taught Course / Mix Mode"
daripada IPT yang diiktiraf oleh LJM
(IPT yang menjalankan program
Sarjana Muda Kejuruteraan berkaitan
dan diiktiraf oleh LJM)

SARJANA MUDA
KEJURUTERAAN
(DIKTIRAF LJM)

DIPLOMA KEJURUTERAAN /
TEKNOLOGI KEJURUTERAAN

INSTITUSI PENGAJIAN

PROGRAM ASASI / TEKNOLOGI /
Matrikulasi / SAINS /
KEJURUTERAAN / STPM

SPM

***MAKLUMAN : UNTUK BERKERJA sebagai Jurutera / Teknologis Kejuruteraan, pendaftaran dengan LJM adalah WAJIB.**

Nota : LJM - Lembaga Jurutera Malaysia
IPT - Institut Pengajian Tinggi

SPM - Sijil Pelajaran Malaysia
STPM - Sijil Tinggi Persekolahan Malaysia

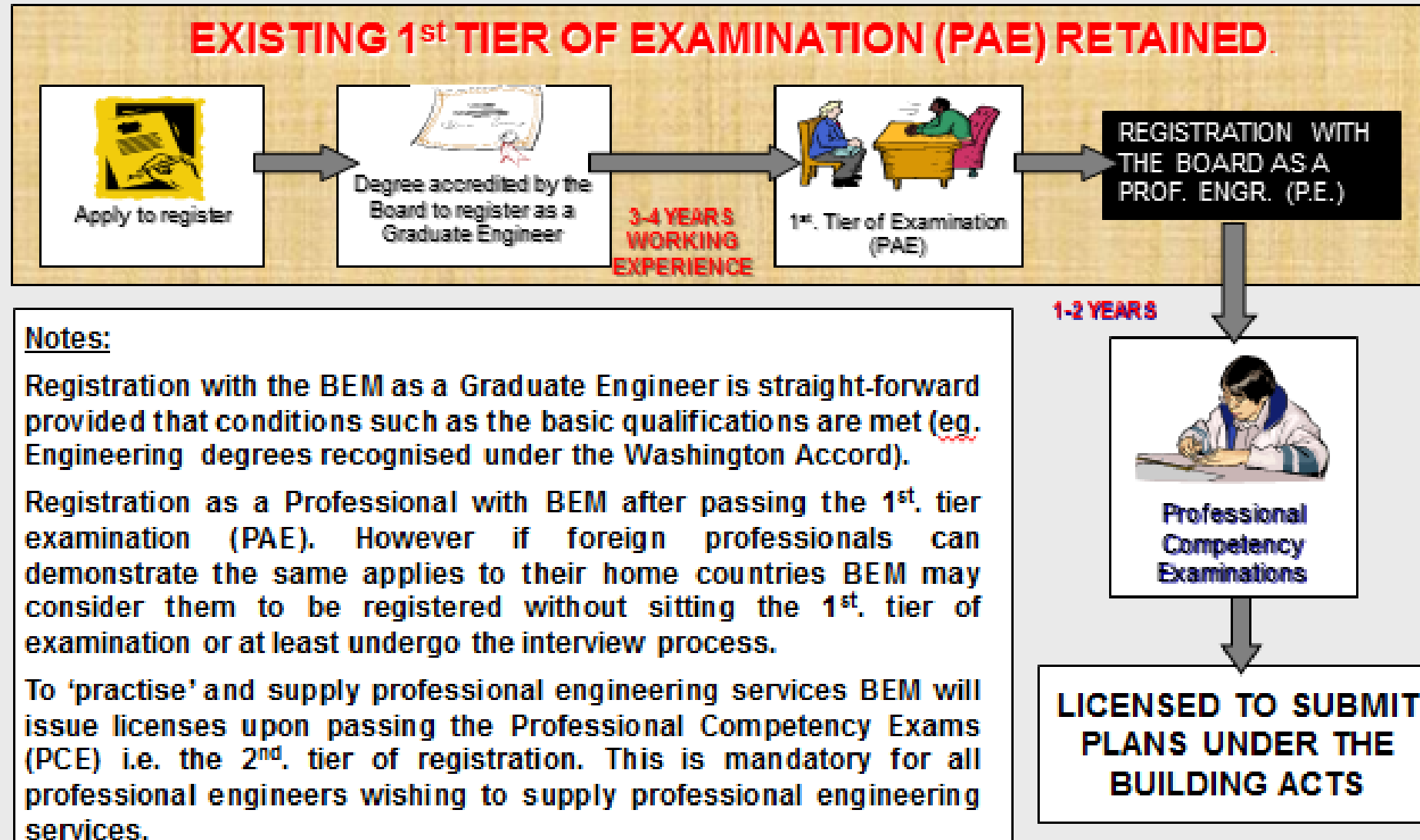
Registration with BEM

Work Experience after Date of Registration with BEM as Graduate Engineer only shall be considered for P.I Application

Example: Graduated with accredited Engineering Degree in 2010 but registered as Graduate Engineer with BEM in July 2018 – Permitted to apply for Tier 1 PE P.I. Interview after July 2021

Route To Become P.Eng with PC

EXISTING 1st TIER OF EXAMINATION (PAE) RETAINED.



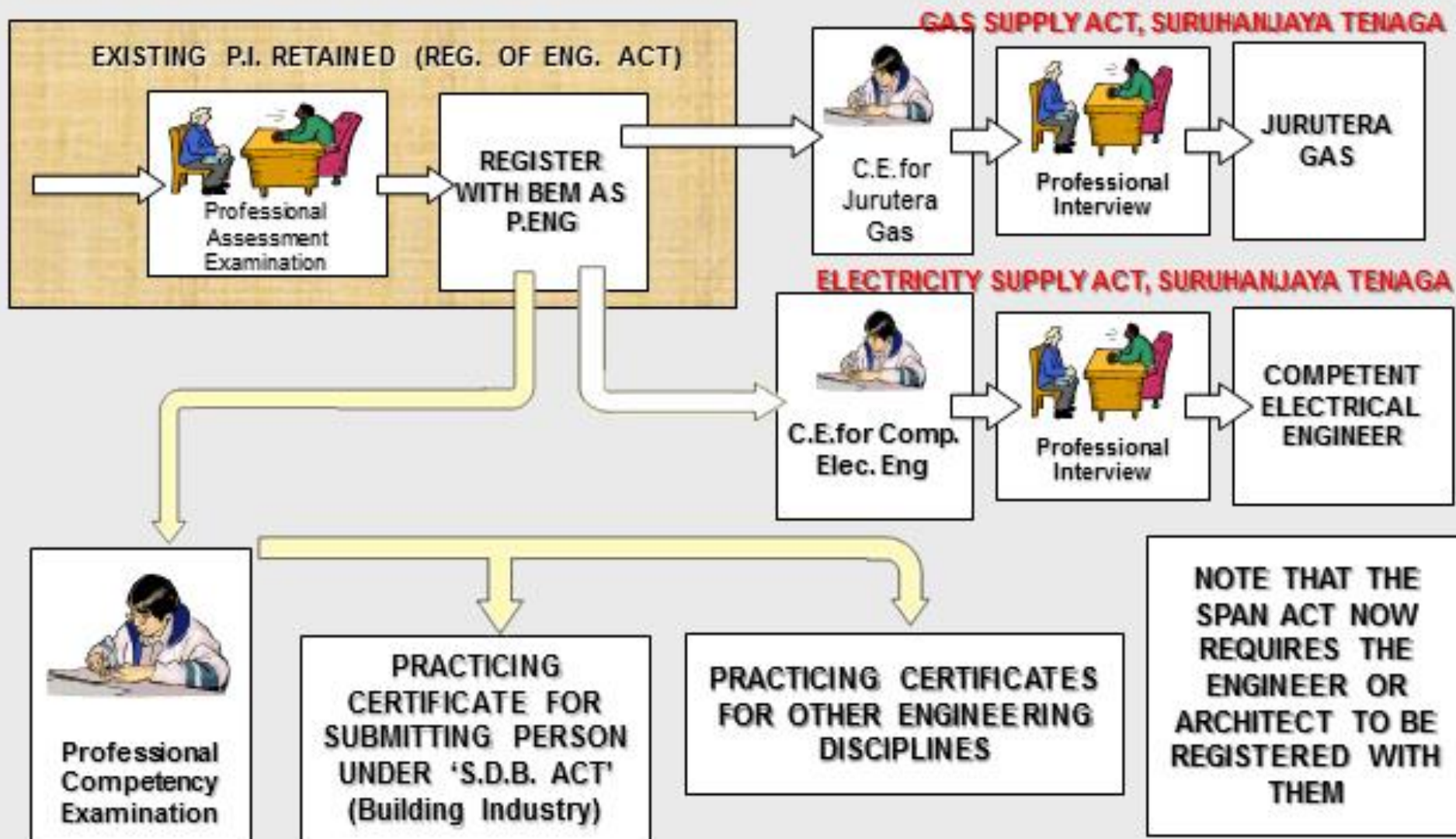
Notes:

Registration with the BEM as a Graduate Engineer is straight-forward provided that conditions such as the basic qualifications are met (eg. Engineering degrees recognised under the Washington Accord).

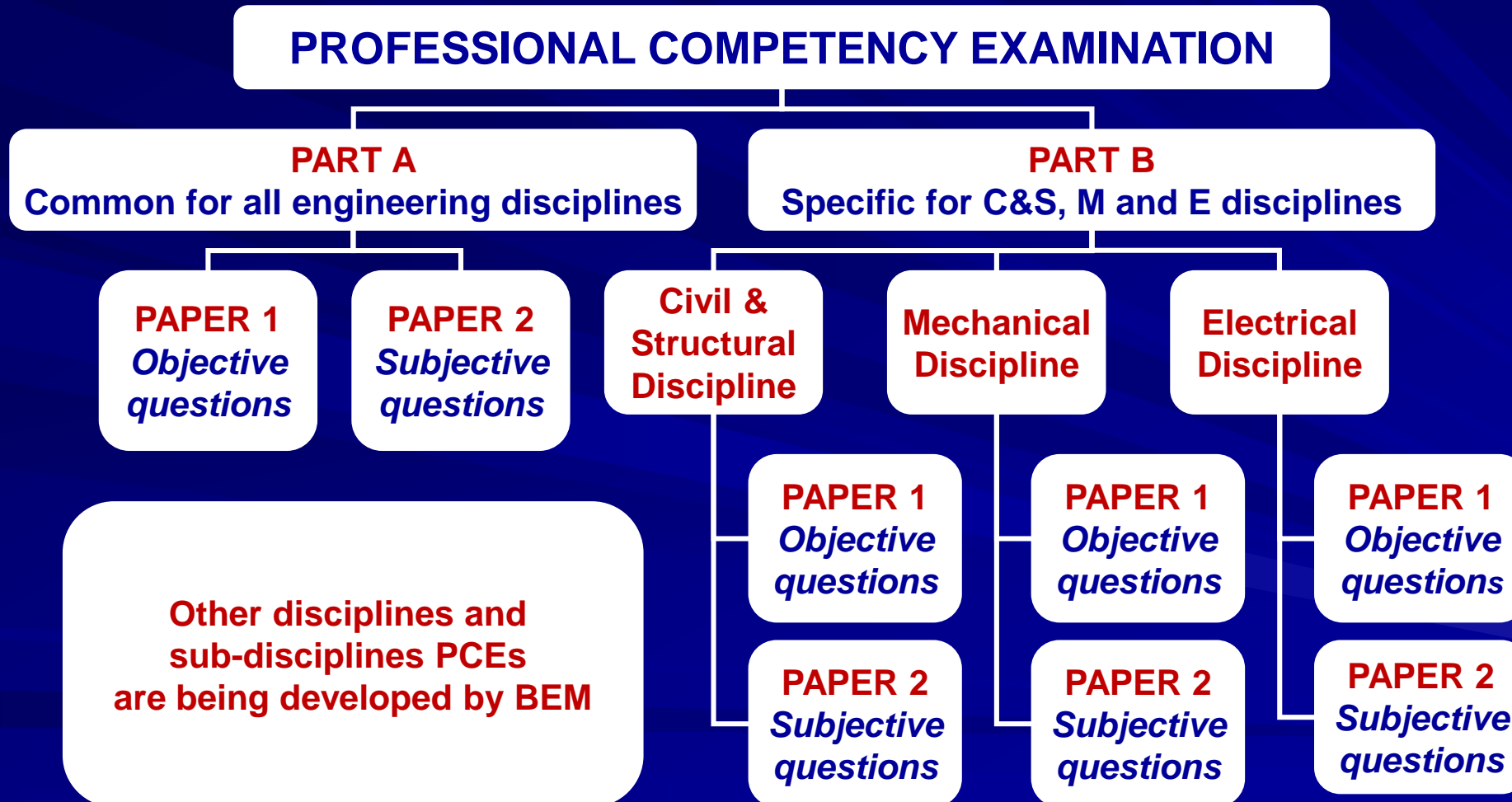
Registration as a Professional with BEM after passing the 1st. tier examination (PAE). However if foreign professionals can demonstrate the same applies to their home countries BEM may consider them to be registered without sitting the 1st. tier of examination or at least undergo the interview process.

To 'practise' and supply professional engineering services BEM will issue licenses upon passing the Professional Competency Exams (PCE) i.e. the 2nd. tier of registration. This is mandatory for all professional engineers wishing to supply professional engineering services.

For Engineers → Other Exams



Format of PCE (for PE to PEPC)



PCE : PART A

PART A - Common Paper

- To be taken by **all candidates**
- **Non-technical** in nature
- To test candidates' knowledge of **laws governing the profession**, the **responsibility of the professional towards the general public** and **standards of professionalism and ethical behaviour**

There are two papers for this PART → Paper 1 and Paper 2

PCE : PART B

PART B - Paper on each Discipline

- To be taken by candidates in the **relevant discipline** which they wish to practice
- **Technical** in nature
- **Test candidate's competency** within his respective field of practice on :
 - ✓ Regulations and rules of practice by BEM
 - ✓ Statutory laws, codes, regulations etc.

There are two papers for this PART → Paper 1 and Paper 2

IEM LOG BOOK

(prepares Graduate Engineers for PI / PAE)

What needs to be recorded:

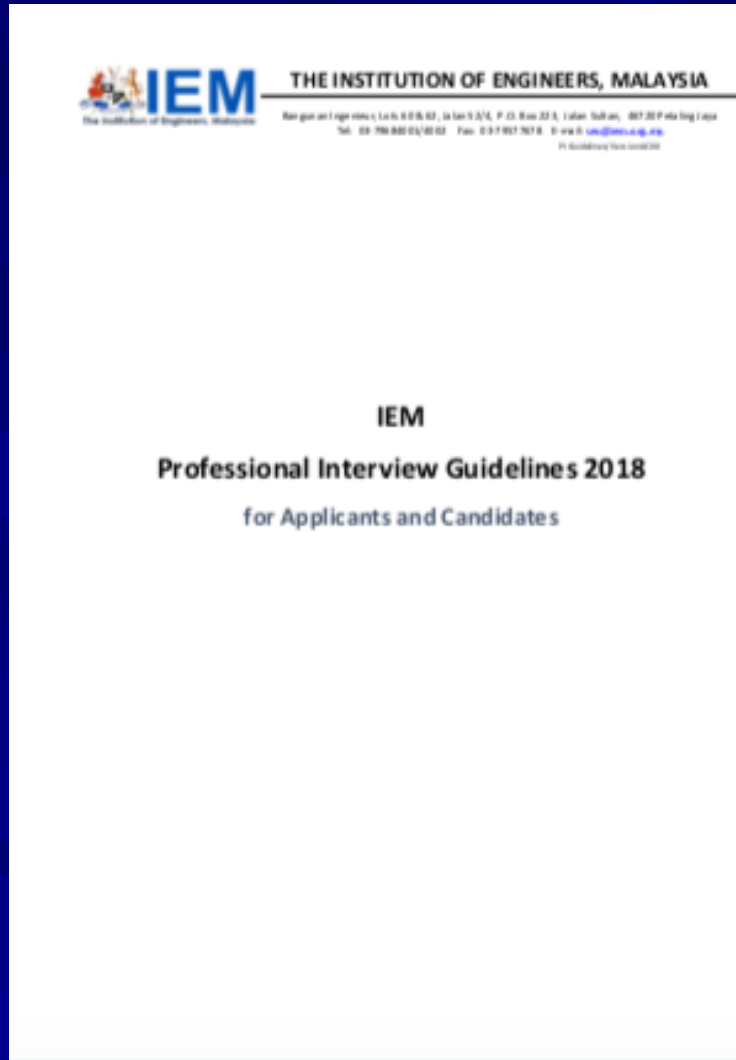
- 1. Practical working experience & competencies achieved (minimum 3 years)**
- 2. Attendance at relevant courses (optional for BEM Registration but necessary for P.I. Interview – Portfolio of Evidence)**

2.0

**Highlights of the IEM P.I.
Process**

IEM

Professional Interview



Key Terms

Key Terms	Definition / Description
Competency Category	A group of Competency Elements that are classified under a broad area of professional competency required for the assessment in Professional Interview.
Competency Element	A component of Competency Category that describes a specific area of professional competency against which the PI Candidate is assessed for his level of attainment based on the evidence demonstrated against a specific set of standard criteria.

Competency Categories – Oral Interview

A -- Knowledge and Understanding

B -- Design & Development of Process, System, Service & Product

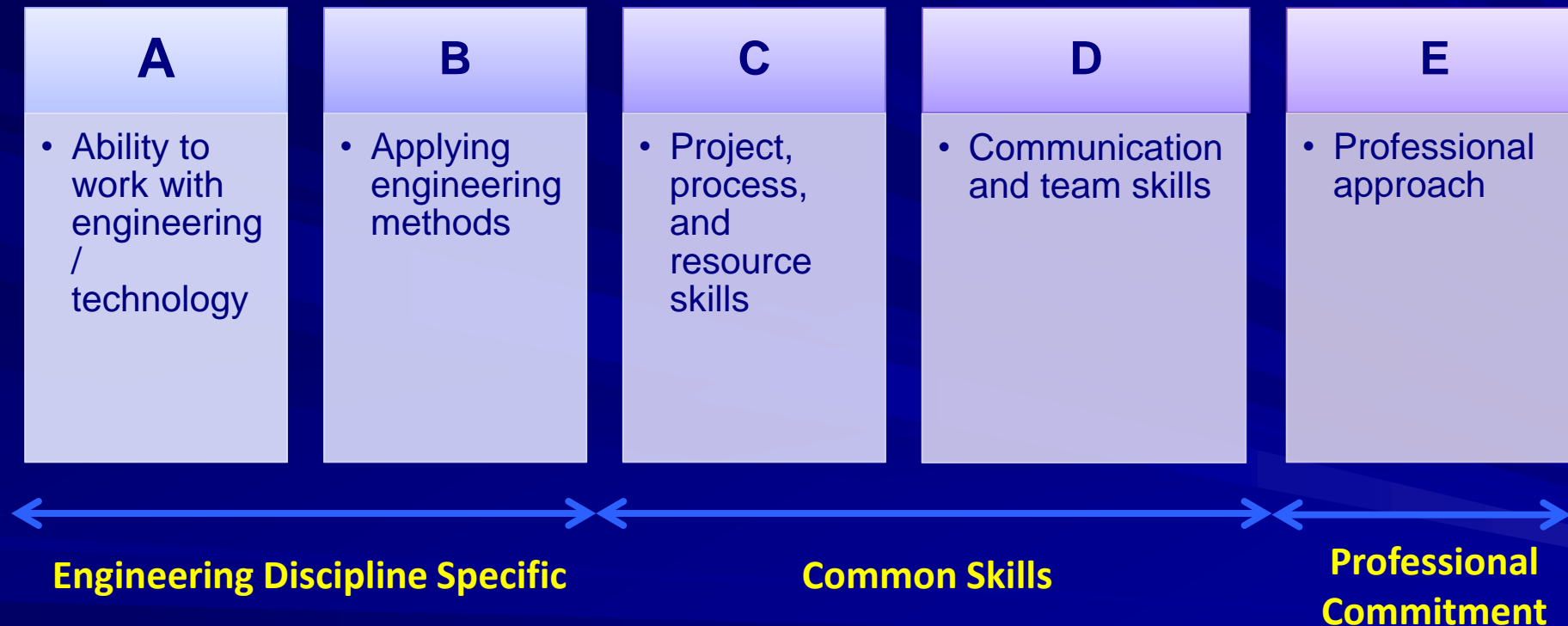
C -- Responsibilities, Management and Leadership

D -- Communication and Inter-personal Skills

E -- Professional Commitment

Competency Categories – Oral Interview

Interviewers will probe the five competency and commitment statements as follows:



Refer to **IEM PI 0100** for more details.

Competency Elements – Oral Interview

- ✓ Each **Competency Category** consists of a few **Competency Elements**.
- ✓ There are **18 Competency Elements** under the **5 Competency Categories** – refer to document IEM PI 0100.
- ✓ The Professional Interview will **directly assess** PI Candidates on all the 18 Competency Elements.
- ✓ There are **four (4) levels** for assessing Candidate's attainment of each competency element.

Objective Assessment -- Rubrics

Level	Generic Statement of Attainment
1	Little or No Evidence of Competency
2	Some Evidence of Competence Identified
3	Fully Acceptable Level of Competency
4	Exceptionally Strong Level of Competency

Assessing Oral Interview

	MARKS (Out of 4)						
A	A1	A2	A3			Average	2.7
	3	3	2				
B	B1	B2	B3			Average	2.7
	3	2	3				
C	C1	C2	C3	C4		Average	2.8
	3	2	3	3			
D	D1	D2	D3			Average	2.7
	3	3	2				
E	E1	E2	E3	E4	E5	Average	2.4
	2	3	3	2	2		
Total Score							13.0
Final Average Score							2.7

TO PASS:

- An average $>$ or $=$ 2.6
- No category average $<$ 2.0
- E1, E2, E3 $>$ 2.0

Marking Written Paper

Section A							
T	T1	T2	T3			Average	3.3
	3	3	4				
W	W1	W2	W3			Average	2.3
	2	2	3				
Total Score							5.6
Final Average Score							2.8
Section B							
P	P1	P2	P3			Average	2.7
	3	2	3				
W	W1	W2	W3			Average	2.7
	3	3	2				
Total Score							5.4
Final Average Score							2.7

TO PASS:

- An average $>$ or $=$ 2.6
- No category average $<$ 2.0
- E1, E2, E3 $>$ 2.0

T – Evidence of technical competencies

W – Evidence of writing (& reading) competencies

P – Evidence of competencies relating to ethical conduct

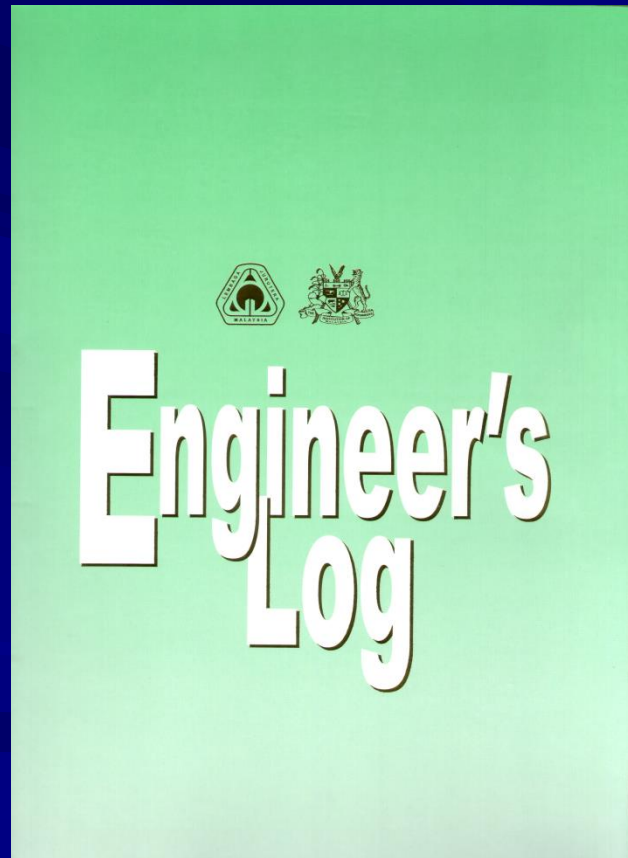
Clarifying Concerns

- ✓ Each Candidate has **unique** work experience because of the nature of job.
- ✓ Most Candidates are able to develop an **acceptable** level of attainment in the majority of Competency Elements.
- ✓ Nature of work sometimes makes Candidates lacking in a few Competency Elements; but they can still pass PI if they are good in most of the other Elements.

3.0

New IEM Log Book

NEW Log Book Details

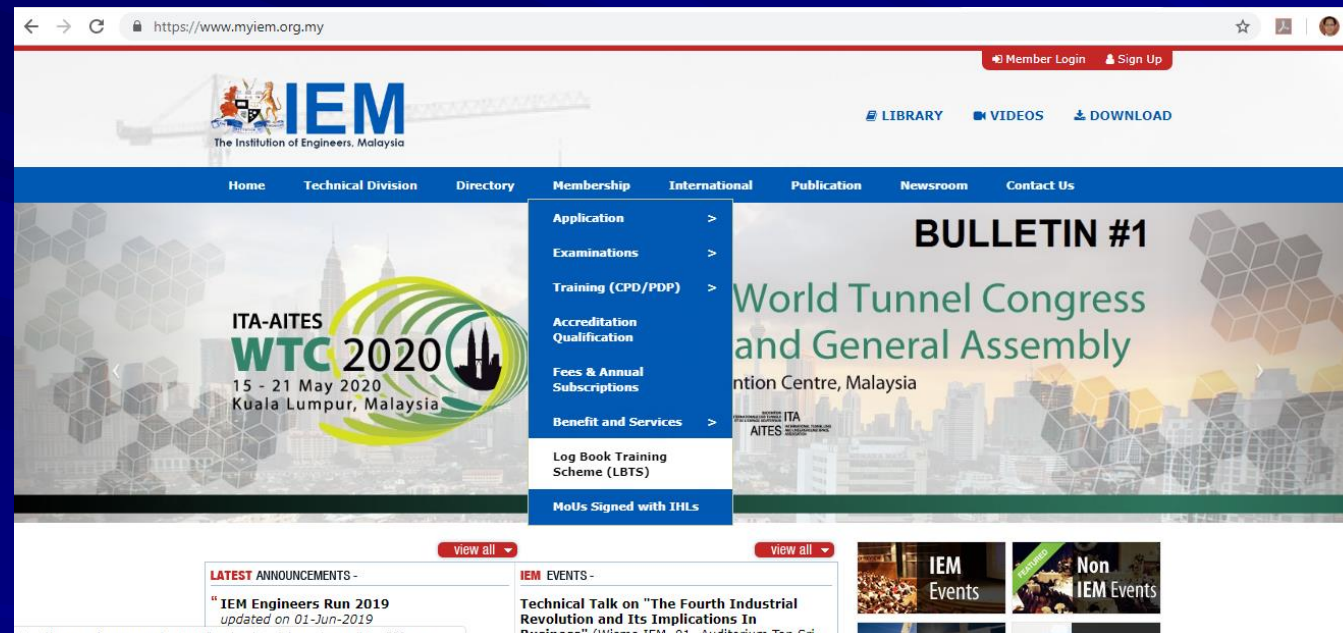


Available ONLINE
at IEM webpage

https://www.myiem.org.my/content/log_book_training_scheme_lbts_-580.aspx

IEM ECD Mentorship Program Log File (.docx)

NEW!



https://www.myiem.org.my/content/log_book_training_scheme_lbts_-580.aspx

https://www.myiem.org.my/content/log_book_training_scheme_lbts_580.aspx

NEW!

IEM ECD Mentorship Program Log File (.docx)

The screenshot shows the IEM website interface. At the top, there is a navigation bar with links for 'Member Login' and 'Sign Up'. Below this is a secondary navigation bar with 'LIBRARY', 'VIDEOS', and 'DOWNLOAD'. The main navigation menu includes 'Home', 'Technical Division', 'Directory', 'Membership', 'International', 'Publication', 'Newsroom', and 'Contact Us'. The 'Membership' menu is expanded, showing options like 'Application', 'Examinations', 'Training (CPD/PDP)', 'Accreditation Qualification', 'Fees & Annual Subscriptions', 'Benefit and Services', 'Log Book Training Scheme (LBTS)', and 'MoUs Signed with IHLs'. The main content area is titled 'Log Book Training Scheme (LBTS)' and contains several paragraphs of text describing the scheme. At the bottom of the main content area, there is a table with the following data:

Additional Information	Posted on		
IEM's Next Top Mentor Info	25-Jan-2019	Download	Post Comment
IEM ECD Mentorship Program Log File (.docx) Form	10-Jan-2019	Download	Post Comment
IEM ECD Mentorship Program Log Files (.pdf) Form	10-Jan-2019	Download	Post Comment
ECD PARTICIPANTS LIST_Mentee List	23-Nov-2018	Download	Post Comment
ECD PARTICIPANTS LIST_Mentor List	08-Mar-2019	Download	Post Comment
FAQs Info	03-Feb-2017	Download	Post Comment
IEM Log Book Form Form	04-Nov-2015	Download	Post Comment
IEM Log Book Guidelines Info	04-Nov-2015	Download	Post Comment

What Is In The Log Book

Section A – Particulars of Log Book Scheme

Section B – Summary of Practical Training and Experience **(NEW!)**

Section C – Practical Training Record (3 Months Period)

Section D – Courses Attended (Advisable)

Section E – Professional Career Development Activities

Section A Particulars of Log Book Scheme

Section A Particulars of Log Book Scheme

- Particulars of Graduate Engineer under Training
- Particulars of Mentor / Supervising Engineer
- *Particulars of Mentor / Supervising Engineer (if there is a change)*

Section A: Particulars of Log Book Scheme

Particulars of Graduate Engineer under training

Name of Candidate: _____

Identity Card Number: _____

Date of Birth: _____ Nationality: _____

BEM Graduate Registration No: _____ Date: _____

IEM Membership No: _____ Date: _____

Discipline of Engineering: _____

Address: _____

Telephone No. _____ (Off) _____ (Hse/HP) Fax: _____

E-mail: _____

Degree Awarded: _____ Year of Graduation: _____

Colleges / Universities attended (with dates) after SPM / STPM

1. _____

2. _____

3. _____

4. _____

Industrial training / experiences during undergraduate course

(By Mentee)

- Particulars of Graduate Engineer under Training

Section A: Particulars of Log Book Scheme

(By Mentor)

- Particulars of Mentor / Supervising Engineer
- *Particulars of Mentor / Supervising Engineer (if there is a change)*

Particulars of Mentor / Supervising Engineer

Name: _____ IEM M'ship, Grade & No: _____

Name and Address of Company/Organisation: _____
_____ Tel No : (0) _____

Present Designation: _____

Engineering Discipline: _____ Year elected as IEM Corporate Member: _____

Brief particulars of working experience: _____

Particulars of Mentor / Supervising Engineer (if there is a change)

Name: _____ IEM M'ship, Grade & No: _____

Name and Address of Company/Organisation: _____
_____ Tel No : (0) _____

Present Designation: _____

Engineering Discipline: _____ Year elected as IEM Corporate Member: _____

Brief particulars of working experience: _____

Particulars of Mentor / Supervising Engineer (if there is a change)

Name: _____ IEM M'ship, Grade & No: _____

Name and Address of Company/Organisation: _____
_____ Tel No : (0) _____

Present Designation: _____

Engineering Discipline: _____ Year elected as IEM Corporate Member: _____

Brief particulars of working experience: _____

Institution of Engineers, Malaysia – Engineering Competency Development – Updated 4 December 2018

Section B
**Summary of Practical
Training Experience**

NEW!

Section B
**Summary of Practical
Training & Experience**

- **Annual** Summary of Competencies Obtained
- **Quarterly** Summary of Competencies Obtained
- Competency Category A (Detailed)
- Competency Category B (Detailed)
- Competency Category C (Detailed)
- Competency Category D (Detailed)
- Competency Category E (Detailed)

Section B: Summary of Practical Training & Experience

PRACTICAL TRAINING & EXPERIENCE RECORDS SUMMARY

Annual Summary of Competencies Obtained

Category	Element	Brief Evidences	Mentor's Comments	Date
A Engineering Knowledge Application	A1			
	A2			
	A3			
B Problem Solving	B1			
	B2			
	B3			
C Management	C1			
	C2			
	C3			
	C4			
D Interpersonal Skill	D1			
	D2			
	D3			
E Professional Ethics	E1			
	E2			
	E3			
	E4			
	E5			

A

B

C

D

E

Section B: Summary of Practical Training & Experience

PRACTICAL TRAINING & EXPERIENCE RECORDS SUMMARY

Annual Summary of Competencies Obtained

Category	Element	Brief Evidences	Mentor's Comments	Date
A Engineering Knowledge Application	A1			
	A2			
	A3			
B Problem Solving	B1			
	B2			
	B3			
C Management	C1			
	C2			
	C3			
	C4			
D Interpersonal Skill	D1			
	D2			
	D3			
E Professional Ethics	E1			
	E2			
	E3			
	E4			
	E5			

Mentor recommendations

Year 1/2/3 Recommendation

Support for PI

Require more exposure

Date

Mentee:

- *Brief Evidences*
- *Date*

Mentor:

- *Mentor's Comments*
- *Mentor's Recommendations*
- *Year 1/2/3 Recommendation*

Empty

Annual Summary of Competencies Obtained

Section B: Summary of Practical Training & Experience

PRACTICAL TRAINING & EXPERIENCE RECORDS SUMMARY

Annual Summary of Competencies Obtained

Category	Element	Brief Evidences	Mentor's Comments	Date
A Engineering Knowledge Application	A1 ✓	Integrated hydrology and hydraulic (loss database)	It is a good attempt to use the .dss database software to save time	20/5/2019
	A2 ✓			
	A3 ✓	flow rate calculation		
B Problem Solving	B1		Opportunity to learn detailed design of slope, need to understand how to derive soil parameters.	20/5/2019
	B2 ✓	revise slope design		
	B3 ✓	design modification for drainage		
C Management	C1 ✓	set milestone for project	Good experience in job management. Important to understand project requirements.	20/5/2019
	C2 ✓	Assign tasks to junior engineer		
	C3 ✓	lead a team of junior engineer		
	C4 ✓	Delay in project		
D Interpersonal Skill	D1 ✓	carry out internal discussion	To learn more about brain storming exercise and to draw good outcome from the members' participation.	20/5/2019
	D2 ✓	present finding of hydraulic modeling		
	D3 ✓	communicate with colleague		
E Professional Ethics	E1 ✓	using licensed or free software	Also need to understand the professional liability as an engineer.	20/5/2019
	E2 ✓	risk assessment for dam break		
	E3 ✓	reduce excavation volume and reduce settlement		
	E4 ✓	Attend technical talk		
	E5			

Mentor recommendations

You have done quite well in the application softwares for analysis of projects. Next improvement is understand how the input parameters are derived and the interpretation of results, their implication to the project in terms of design requirements, cost of construction and time.

Year 3/2/3 Recommendation

Support for PI
Require more exposure
Date

✓
20/5/2019

Annual Summary of Competencies Obtained

Comment:
Mentor to stamp PE chop & sign

Sample

Section B: Summary of Practical Training & Experience

Quarterly Summary of Competencies Obtained

From - To (Month & Year)	Position Held / Name of Employer	Brief description of Duties (Full details to be documented in Section C)	Area of Experience (Design, Site, Management Teaching, Research)	Competency Elements Gained
Apr 2018 to Jun 2018	Civil Engineer Angkasa Consulting Services	don bank modeling, flood assessment and hydraulic analysis, slope assessment and foundation application	Design, site management	A1, A2, A3, B2, B3, D1, D2, E1, E4
July 2018 to Oct 2018	Civil Engineer Angkasa Consulting Services	idea, runway or don bank, review previous report, flood assessment and hydraulic analysis, slope protection works and foundation application	Design, site management	B1, B3, D1, D2, E1, E2, E4
Nov 2018 to Dec 2018	Civil Engineer Angkasa Consulting Services	prepare BOB, design of project roadwork, analysis using all geo document, assessing stability slope protection works, assessing rate of catchment for BOB	Design, site management	D1, E1, E4
Jan 2019 to Apr 2019	Civil Engineer Angkasa Consulting Services	drainage design, modification work, hydraulic analysis, sewerage yield analysis, attend site visit, hydrology	Design, site management	C1, C2, C3, C4, B4, D1, D3, E1, E4

← Each record should be for a 3 month interval

Comment:
Mentor to stamp PE chop & sign

COMMENTS OF SUPERVISOR/MENTOR

For further advancement of the skill in design require, you should learn more on how the project will be constructed. Also the potential problems that may arise during construction stage.

In the design of project, you need to understand the potential failure modes and identify methods to mitigate the risk.

Sample

Quarterly Summary of Competencies Obtained

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY A (Detailed)

A	Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology.
A1	Maintain and extend a sound theoretical approach in enabling the introduction and exploitation of new and advancing technology and other relevant developments.
A2	Engage in the creative and innovative development of engineering technology and continuous improvement systems.
A3	Apply engineering knowledge related to local practices, codes, standards, specifications, materials, products, environmental plans and other requirements; and where appropriate, apply engineering knowledge contributed by others including suppliers, consultants, contractors, manufacturers, technologists, researchers and independent experts.

Evidence of your competence in Category A	Element	Date Obtained

A: Engineering Knowledge
Application
Mentee to fill

**Competency Category A
(Detailed)**

Empty

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY A (Detailed)

- A Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology.
- A1 Maintain and extend a sound theoretical approach in enabling the introduction and exploitation of new and advancing technology and other relevant developments.
- A2 Engage in the creative and innovative development of engineering technology and continuous improvement systems.
- A3 Apply engineering knowledge related to local practices, codes, standards, specifications, materials, products, environmental plans and other requirements; and where appropriate, apply engineering knowledge contributed by others including suppliers, consultants, contractors, manufacturers, technologists, researchers and independent experts.

Evidence of your competence in Category A	Element	Date Obtained
Carry out integrated hydrology and hydraulic modelling of Sg. Kelantan using the .dss database file system in both HEC-HMS and HEC-RAS for easier retrieval and efficient storage. Previously results were stored in the software individually and retrieval is done manually by accessing the data in the software itself. The .dss database system adopted allows the results from HEC-HMS (hydrology model) to be read and input into HEC-RAS (hydraulic model) without any further user input. This method saves time and improves on the modelling efficiency.	A1, A2	May 2018
Specify the clear straight distance requirement for the electromagnetic flowmeter with input from the supplier and manufacturer to achieve the required 0.5% flow measurement accuracy. The minimum straight pipe requirement of 5D upstream and 3D downstream of the flowmeter is required to reduce the turbulence and flow disturbance. Some of the flowmeters are sized smaller to achieve the specified 1% performance requirement. Tapers and valves are suitability located before/after the straight pipe of the flowmeter.	A3	Jun 2018

A: Engineering Knowledge
Application
Mentee to fill

Competency Category A
(Detailed)

Sample

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY B (Detailed)

B	Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems
B1	Identify potential projects and opportunities
B2	Conduct appropriate research and undertake design and development of engineering solutions.
B3	Implement design solutions, and evaluate their effectiveness.

Evidence of your competence in Category B	Element	Date Obtained

B: Problem Solving
Mentee to fill

**Competency Category B
(Detailed)**

Empty

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY B (Detailed)

- B Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems**
- B1** Identify potential projects and opportunities
- B2** Conduct appropriate research and undertake design and development of engineering solutions.
- B3** Implement design solutions, and evaluate their effectiveness.

Evidence of your competence in Category B	Element	Date Obtained
The slope design for Bukit Sah 3 and Bukit Kalam is revised midway during construction to expedite the construction works. The much steeper slope reduces the amount of earthworks required. The rock protection works for Bukit Sah 3 and Bukit Kalam are revised after slope assessment by specialist geologist and geotechnical engineer.	B2, B3	May 2018, Aug 2018
Carry out some design modifications for the outlet of the drainage system of Bukit Kalam, which includes diversion of some drains and omission of sumps and culvert to reduce the cost of the project.	B3	Feb 2019

B: Problem Solving
Mentee to fill

**Competency Category B
(Detailed)**

Sample

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY C (Detailed)

C	Provide technical and commercial management.
C1	Plan for effective project implementation.
C2	Plan, budget, organise, direct and control tasks, people and resources.
C3	Lead teams and develop staff to meet changing technical and managerial needs.
C4	Bring about continuous improvement through quality management.

Evidence of your competence in Category C	Element	Date Obtained

C: Management
Mentee to fill

**Competency Category C
(Detailed)**

Empty

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY C (Detailed)

- C Provide technical and commercial management.**
- C1** Plan for effective project implementation.
 - C2** Plan, budget, organise, direct and control tasks, people and resources.
 - C3** Lead teams and develop staff to meet changing technical and managerial needs.
 - C4** Bring about continuous improvement through quality management.

Evidence of your competence in Category C	Element	Date Obtained
Organise "to do" lists and set milestones to deliver the reports on time. Relevant tasks are discussed and each team member's roles are clearly defined to avoid further delay in project delivery.	C1	Jan 2019
Assign tasks to junior engineers and manage the work progress in order complete the overall tasks at hand within a specified time frame.	C2	Jan 2019
Lead a team of junior engineers to assess the sedimentation of Kinta Dam. Provide guidance on hydrology assessment and soil erosion estimates using USLE.	C3	Feb 2019
Delay in another department project for about 9 months due some changes in the project team. Staff resignation and lack of technical staff affected the submission of the interim report. The interim and draft final reports are delivered within 3 months after takeover of the project. Future project of this nature should be assessed on the risk of delay and backup/standby team members with suitable technical knowledge should be assigned.	C4	Mar Apr 2019

C: Management *Mentee to fill*

Competency Category C (Detailed)

Sample

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY D (Detailed)

D	Demonstrate effective interpersonal skills
D1	Communicate in English or Malay Language with other at all levels.
D2	Present and discuss proposals.
D3	Demonstrate personal and social skills

Evidence of your competence in Category D	Element	Date Obtained

D: Interpersonal Skill
Mentee to fill

**Competency Category D
(Detailed)**

Empty

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY D (Detailed)

- D Demonstrate effective interpersonal skills**
- D1** Communicate in English or Malay Language with other at all levels.
 - D2** Present and discuss proposals.
 - D3** Demonstrate personal and social skills

Evidence of your competence in Category D	Element	Date Obtained
Carry out internal discussion/meeting to discuss the roles of each team member, scope of works and the findings with colleagues including with those in other departments to aid the preparation of report (Kinta Sedimentation report).	D1, D3	Jan 2019
Present the findings of the hydraulic modelling of Sg Kelantan in technical coordination meeting to JPS and elaborate on the flood mitigation options considered in the analysis	D1,D2	Jun 2018, Aug 2018
Communicate effectively with drafter by providing sketches and explanations to aid the preparation and revision of AutoCAD drawings for submission (Bukit Sah 3 and Bukit Kolam)	D1	Nov 2018, Mar 2019

D: Interpersonal Skill
Mentee to fill

**Competency Category D
(Detailed)**

Sample

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY E (Detailed)

E	Demonstrate a personal commitment to professional standards, recognizing obligations to society, the profession and the environment
E1	Comply with relevant codes of conduct.
E2	Manage and apply safe systems of work.
E3	Undertake engineering activities in a way that contributes to sustainable development.
E4	Carry out continuing professional development necessary to maintain and enhance competence in own area of practice.
E5	Understand the legal matters pertaining to engineering profession and be able to communicate with legal personnel on these issues.

Evidence of your competence in Category E	Element	Date Obtained

E: Professional Ethics
Mentee to fill

**Competency Category E
(Detailed)**

Empty

Section B: Summary of Practical Training & Experience

COMPETENCY CATEGORY E (Detailed)

- E Demonstrate a personal commitment to professional standards, recognizing obligations to society, the profession and the environment**
-
- E1 Comply with relevant codes of conduct.
- E2 Manage and apply safe systems of work.
- E3 Undertake engineering activities in a way that contributes to sustainable development.
- E4 Carry out continuing professional development necessary to maintain and enhance competence in own area of practice.
- E5 Understand the legal matters pertaining to engineering profession and be able to communicate with legal personnel on these issues.

Evidence of your competence in Category E	Element	Date Obtained
Paid software such as AutoCAD and ArcGIS are expensive and limited license are available. Workaround using free software such as NanoCAD and QGIS in compliance with the employment legislation, which forbids installation of pirated software.	E1	Apr 2018 – Mar 2019
Carry out risk assessment for the dam break analysis to determine the extent of the inundation in preparation of the Emergency Action Plan (EAP) in the event of dam break. The flood arrival time and depth of floods are important to plan evacuation route and rescue operations.	E2	Jul 2018
Revise the slope design of the Bukit Sah 3 and Bukit Kalam reservoir in order to reduce the amount of excavation volume. The large rock excavated from both sites are tested for their properties before being recycled and regraded into the required grading of the revetment material at river intake. This reduces the amount of rock disposed into dumping areas.	E3	May 2018, Aug 2018
Attend technical talks conducted by IEM in water resources and other relevant fields and document. Provide a summary of the talks and CPD points accumulated.	E4	Apr 2018 – Mar 2019

E: Professional Ethics *Mentee to fill*

Competency Category E (Detailed)

Sample

Section C
Practical Training Records –
3 Month Period

Section C
Practical Training Records -
3-Month Period

Section C Practical Training Records – 3 Month Period

Brief Description of practical training experience →

**Section C
Practical Training Records -
3-Month Period**

Details of project(s) participated ↗

NEW! Types of skills / competencies obtained →

PRACTICAL TRAINING RECORD – 3-MONTH PERIOD

Name of Candidate: _____

Effective from: _____ To: _____

Brief description of practical training experience

Details of project(s) participated

Types of skills/competencies obtained:

Name of Mentor / Supervising Engineer: _____ Discipline: _____

IEM Membership No.: _____ P Eng. No.: _____

Signature of Mentor/Supervising Engineer: _____

Section C: Practical Training Records (3 Month Period)

PRACTICAL TRAINING RECORD – 3 MONTH PERIOD

Name of Candidate: _____

Effective from: JANUARY 2014 To: MARCH 2014

Brief description of practical training experience

Structure and infrastructure design of 7 storey service apartments.
→ *Conventional structural design using shear walls, columns, beam and slabs and retaining walls.*
→ *Water reticulation, road and drainage, sewerage system and sfp designs and submissions to all relevant authorities.*

Details of project(s) participated

A small mixed development project by SB Land Sdn Bhd. located near to Kajang exit interchange along Jalan Nila Kajang. The project consists of service apartments, hotels and shop lots, petrol station, restaurant, show room / service centre and a private STP.

Type of skills / competencies obtained:

Catchment designs; road and drainage designs; traffic analysis; calculate water demand; Procedures for submission

Name of Mentor / Supervising Engineer: _____ Discipline: Civil

IEM Mem: _____ P. Eng. No.: _____

Signature of Mentor / Supervising Engineer: _____

- Brief description of jobs or tasks performed by the Mentee.
- Sketches or simple diagram may be used.
- Detail investigations, studies & calculations could be submitted as attachments to the Log Book.

Sample

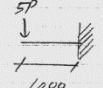
Section C: Practical Training Records (3 Month Period)

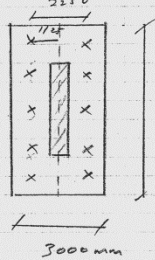
Project :		S3 Land Lot 1345										REMARKS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(21)	(22)	(23)	(24)		
Catchment Area (A)		Discharge Q = CJAQ60		Drain Depth		Sump Depth		Remark				
(m ²)	(Hectares)	(Yrs.)	(mm/hr)	(m ³ /s)	(m)	(m)	(m)	(m)	(m)	(m)		
1-2	8934	0.893	0.9	10	196.67	0.44	0.45	0.46	0.46	ok		
2-3	8934	0.893	0.9	10	196.67	0.44	0.45	0.47	0.47	ok		
3-4	8934	0.893	0.9	10	196.67	0.44	0.45	1.11	1.11	ok		
4-5	8934	0.893	0.9	10	196.67	0.44	0.45	1.30	1.30	ok		
1-2a	8934	0.893	0.9	10	196.67	0.44	0.45	0.98	0.98	ok		
MSD	8934	0.893	0.9	10	196.67	0.44	0.45	1.21	1.21	ok		
5-6	8934	0.893	0.9	10	196.67	0.44	0.45	4.44	4.44	ok		
6-Ext	8934	0.893	0.9	10	196.67	0.44	0.45	4.95	5.05	ok		

Sample Attachments

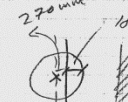
S
 JURUTERA PEKERJANYA
 Project: Bhaya OKL

Sheet No: _____
 Design: _____
 Checked: 7/1/15
 Date: _____
 Job No: JNA 721

1282900
 $Cofmn = 250 \times 9600$
 Loading = $45,710 \text{ KN}$
 $D = 2000$
 $d = 2000 - 75 - 32 - 16$
 $= 1877 \text{ mm}$
 SP




$M = 5800 \times 1.5 \times 5 \times 1.075$
 $= 45,150 \text{ KNm}$



$K = \frac{M}{fbd^2} = \frac{45,150 \times 10^6}{57 \times 3000 \times 1877^2}$
 $= 0.122 < 0.146$

$z = 0.83 \times 1877 = 1558 \text{ mm}$

$A_s = \frac{M}{0.87 f_y z} = \frac{45,150 \times 10^6}{0.87 (460) (1558)}$

$\frac{100 A_s}{bd} = \frac{100 \times 69942}{3000 \times 1877} = 1.24 \% < 4\%$

Primary
 T32-100
 T32-100
 T32-100

Secondary
 T32-200

$V_c = 0.72 \text{ N/mm}^2 \times 1.06$
 $= 0.76 \text{ N/mm}^2$

Enhanced $V_c = 2 \times \frac{d}{Kv} \times V_c$
 $= 2 \times \frac{1877}{730} \times 0.76$
 $= 3.9 \text{ N/mm}^2$

$\frac{V}{bd} = \frac{21,660 \times 10^3}{3000 \times 1877} = 3.85 < 3.9 \text{ N/mm}^2 \text{ ok!}$

Section D Courses Attended (Advisable)

Section D Courses Attended (Advisable)

COURSES ATTENDED (ADVISABLE)

Name of Candidate: _____

	DESCRIPTION	DATE ATTENDED	CONDUCTED BY	CERTIFICATION
1	Code of Ethics / Regulations			
2	Engineering Management			
3	Health and Safety			
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Section D: Courses Attended (Advisable)

COURSES ATTENDED (ADVISABLE)

Name of Candidate: Tan Ke Ho

	DESCRIPTION	DATE ATTENDED	CONDUCTED BY	CERTIFICATION
1	Code of Ethics / Regulations	8 & 9 Jan 2018	JEM	BEM/35197/18
2	Engineering Management	23 & 24 Oct 2017	JEM	BEM/35148/17
3	Health and Safety	30 & 31 Oct 2017	JEM	BEM/35172/17
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Effective 15 February 2016,

- ❖ Course Attendance (60 hours)
 - ❖ PDP (30 units)
- no longer compulsory but applicants for P.I. must demonstrate proficiency in matters related to original 4 compulsory courses:

1. Code of Ethics
2. Engineering Management Practice
3. Occupational Health & Safety at Work, Relevant By-Laws & Regulations
4. Topics related to branch of Engineering (same discipline with Mentee)

Sample

Section E: Professional Career Development Activities

PROFESSIONAL CAREER DEVELOPMENT ACTIVITIES

Name of Candidate: Tan Ken Ho

ACTIVITY	DATE	NO. OF HOURS	CERTIFICATION
Awareness Talk & PI workshop on Enhanced PI process	14/4/2018	3	IEM18/PDP1002/W
Talk on Assessment of water Related Hazards and Disasters in Malaysia	25/4/2018	2	IEM18/HR/141/T
Talk on Selection of Engineering Design option in Flood Mitigation projects	28/4/2018	2	IEM18/HR/169/T
Talk on Hydrological Impacts on the Land use change on subcatchment in topographical catchment	28/4/2018	2	IEM18/HR/142/T
ASIAWATER 2018	10/4/2018 - 12/4/2018		
Talk on Application of Conceptual Numerical modelling for Hydraulic Jumper Assessment	4/9/2018	2	IEM18/HR/383/T
Talk on survey for water resources Engineering Project	4/10/2018	2	IEM18/HR/391/T
One day seminar on Geotechnical Engineering	18/12/2018	6.5	IEM18/HR/1483/S
Engineering Competency Development, IEM members' seminar workshop	16/3/2019	3.5	IEM19/HR/050/W
Half Day Seminar on Resilient Cities & Climate Change: the need for Collaborative Effort	24/4/2019	4	IEM19/HR/136/S
Talk on Engineers Role towards Green Technology and Carbon Foot Print	29/4/2019	2	

Professional Career Development Activities (Optional):

- Technical attendance at
- ✓ Evening talks
 - ✓ Visits
 - ✓ Seminars

Candidates can attend activities not under their discipline

Sample

BEM Explanatory Notes

EXPLANATORY NOTES ON THE REMOVAL OF PDP MANDATORY COURSES REQUIREMENT FOR PROFESSIONAL ENGINEER APPLICATION

This Explanatory Note specifically refers to Circular No. 2/2005 pertaining to Regulation 22 with regard to Professional Development Program (PDP) Units and attendance for compulsory courses for Graduate Engineers applying to become Professional Engineers.

The Circular is no longer applicable **effective 15th February 2016** where the Board has agreed to abolish the PDP units required to apply for the registration as a professional engineer. Therefore, the requirement to attend four courses namely:

- i) Code of Ethics
- ii) Health and Safety at Work
- iii) Engineering Management Practice
- iv) Related Courses on other branches of engineering

are no longer compulsory. Likewise, the requirement to complete not less than 30 PDP units by attending talks, seminars, society/ association meetings and community services for professional is no longer mandatory from the above mentioned date.

BEM Explanatory Notes

Nevertheless, the requirement for three-year practical experience remains effective as required under the Registration of Engineers Act 1967 (Amendment 2015).

Even though it is no longer mandatory to attend the compulsory courses and fulfil the minimum PDP Units, the applicants for the Professional Engineer status are expected to demonstrate proficiency in matters related to the four mandatory courses mentioned above. The applicant may acquire the relevant knowledge and proficiency through work experience, formal and informal courses, on-the-job training and any other means.

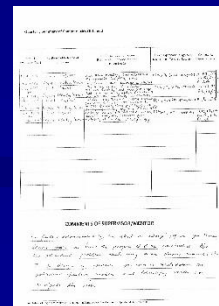
BEM, IEM and other accredited training providers may still provide the relevant courses for the Graduate Engineers. The Board also advises the applicants to keep a record of the trainings attended to facilitate the Professional Engineer application process.

Log Book Details

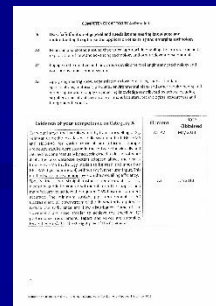
1. The **Log Book** submitted by the Mentee should include the following:
 - ✓ Brief description of **jobs or tasks performed** by the Mentee.
 - ✓ **Sketches** or **simple diagram** may be used.
 - ✓ Detail investigations, studies and calculations could be submitted as **attachments** to the Log Book.



Annual



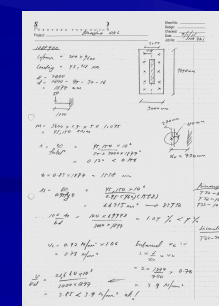
Quarterly



Detailed

Date	Location	Description of work	Remarks
1/1/2020
2/1/2020
3/1/2020
4/1/2020
5/1/2020
6/1/2020
7/1/2020
8/1/2020
9/1/2020
10/1/2020
11/1/2020
12/1/2020

Attachments



Log Book Details

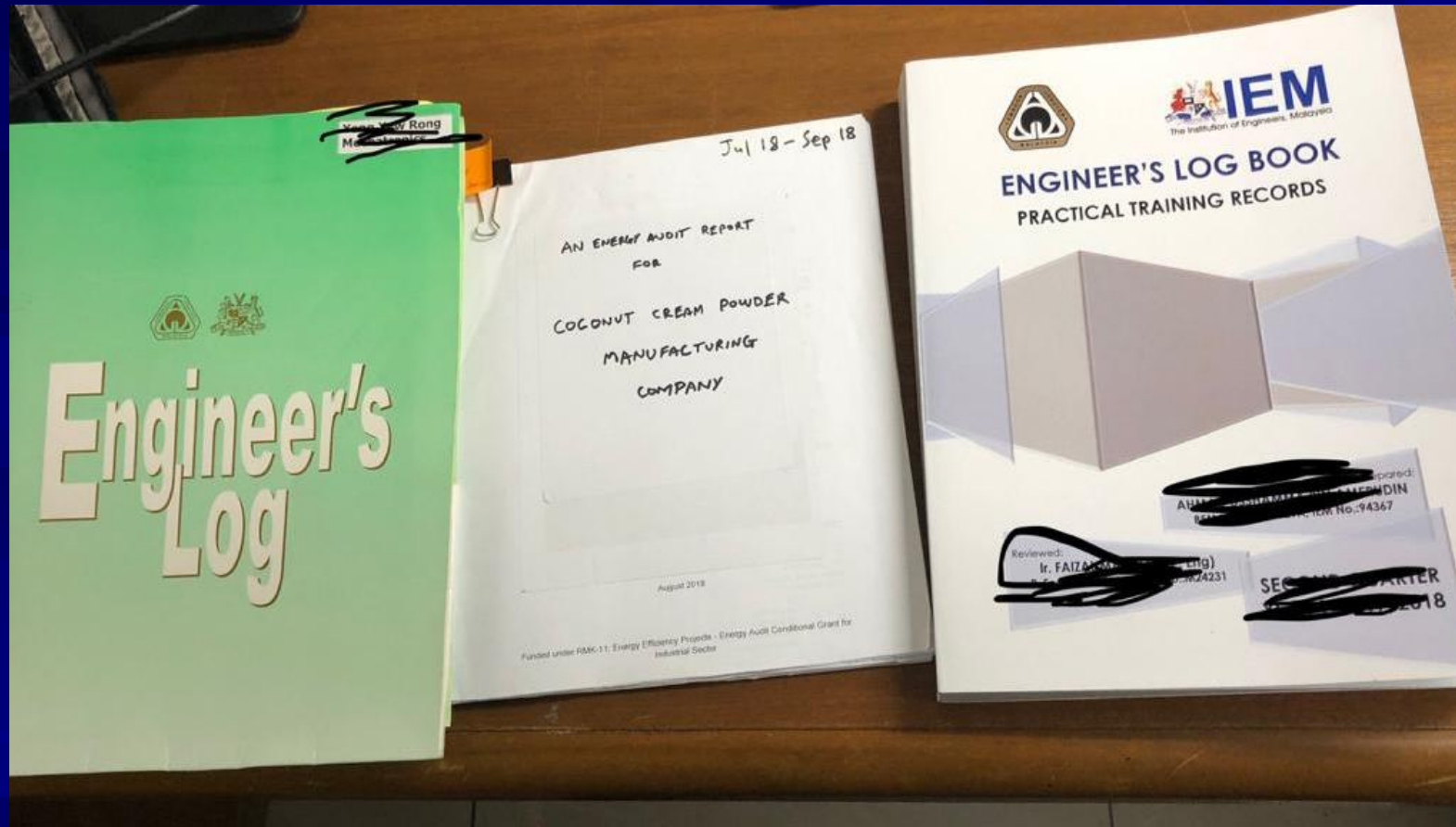
2. Record of activities should be in **chronological order**.
3. **Seminars, talks or courses** should be recorded in log book and provided with a summary on the topics learned.
4. Information must be **relevant** and show:
 - the Mentee's **involvement**
 - **problems** encountered
 - **solutions** proposed &
 - **lessons learnt**.



Common Mistakes

1. Submission not complying with Professional Interview Guidelines
 - ✓ All submission on site experience only, no design experience
2. Irreverent engineering experiences such as
 - ✓ Mechanical graduate engineer submits civil engineering work experiences
 - ✓ Electronic / biomedical graduate engineer submit electrical engineering work experiences
3. Repeated engineering experiences submissions
4. Insufficient details – one page submission, picture report

Log Book Submission



Quarterly Reports: Normal, Simple and Detailed

Common Mistakes

5. **Sub-discipline work experiences** such as
 - ✓ Electrical graduate engineer who wish to sit for electrical engineering discipline submits sub-discipline work experience such as electronic, telecommunications or biomedical (Will be permitted to sit for the relevant sub-discipline only)
6. **Irrelevant details** – MOM, etc. Log Book submission is not a record of construction progress but focused on experience and competencies gained
7. Submission of **confidential document / information** without employer's endorsement

Completing Logbook *DOES NOT* Guarantee Passing PI Interview

Logbook assessment purely based on submission and does not assess the candidate's competency on

- ✓ Oral communication skills
- ✓ Presentation skills
- ✓ Personal grasp & application of engineering fundamentals
- ✓ Maturity to understand his own limitations
- ✓ Adherence to professional code of ethics
- ✓ Capacity to accept professional responsibility

4.0
**ECD Mentorship
Program**

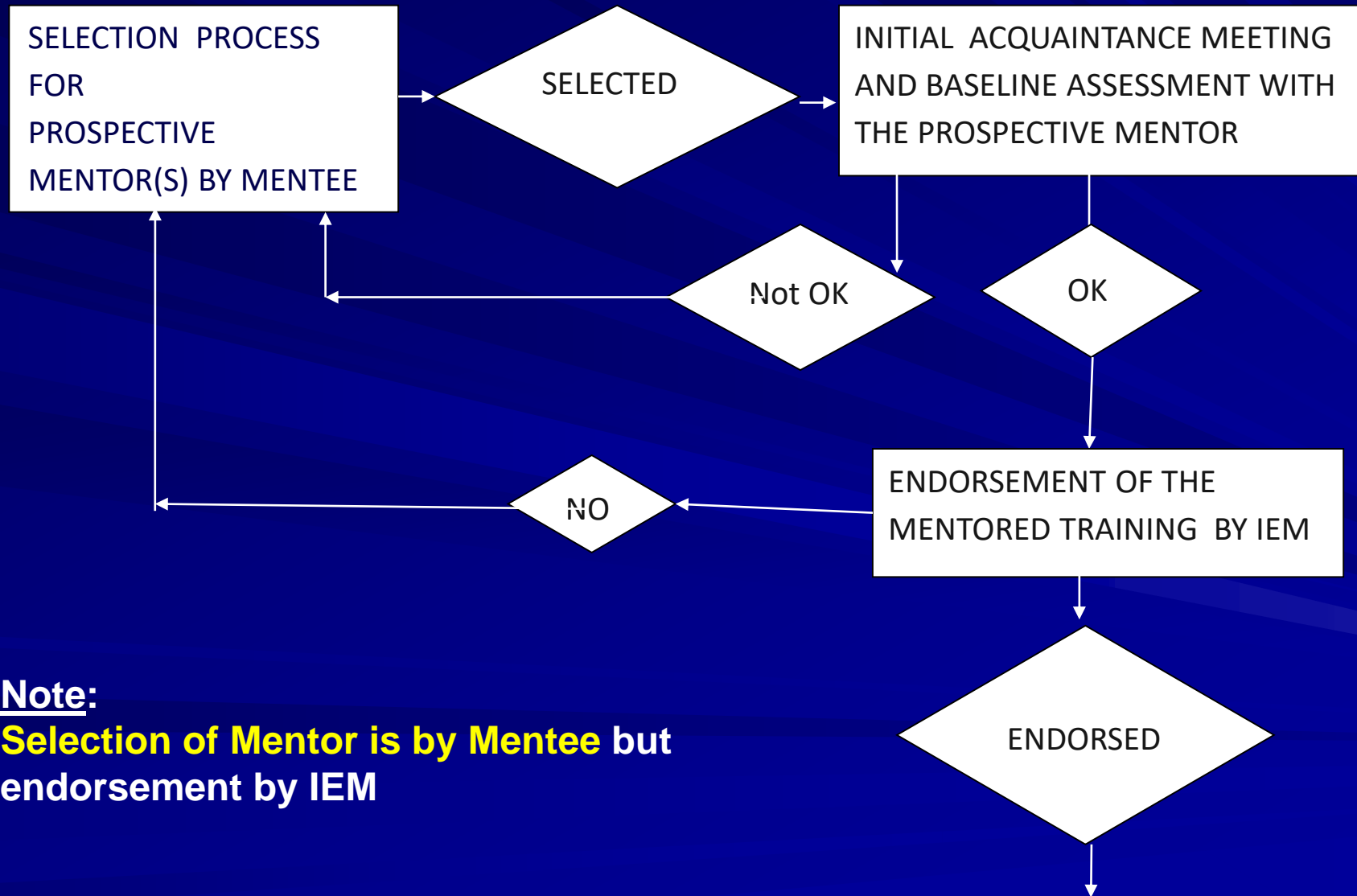
PRACTICAL TRAINING FOR GRADUATES

The Registration of Engineers Regulations 1990 states that
a registered Graduate Engineer is
required to obtain practical experience
under the supervision of
a Professional Engineer of the same
discipline or approved allied discipline

OBJECTIVES

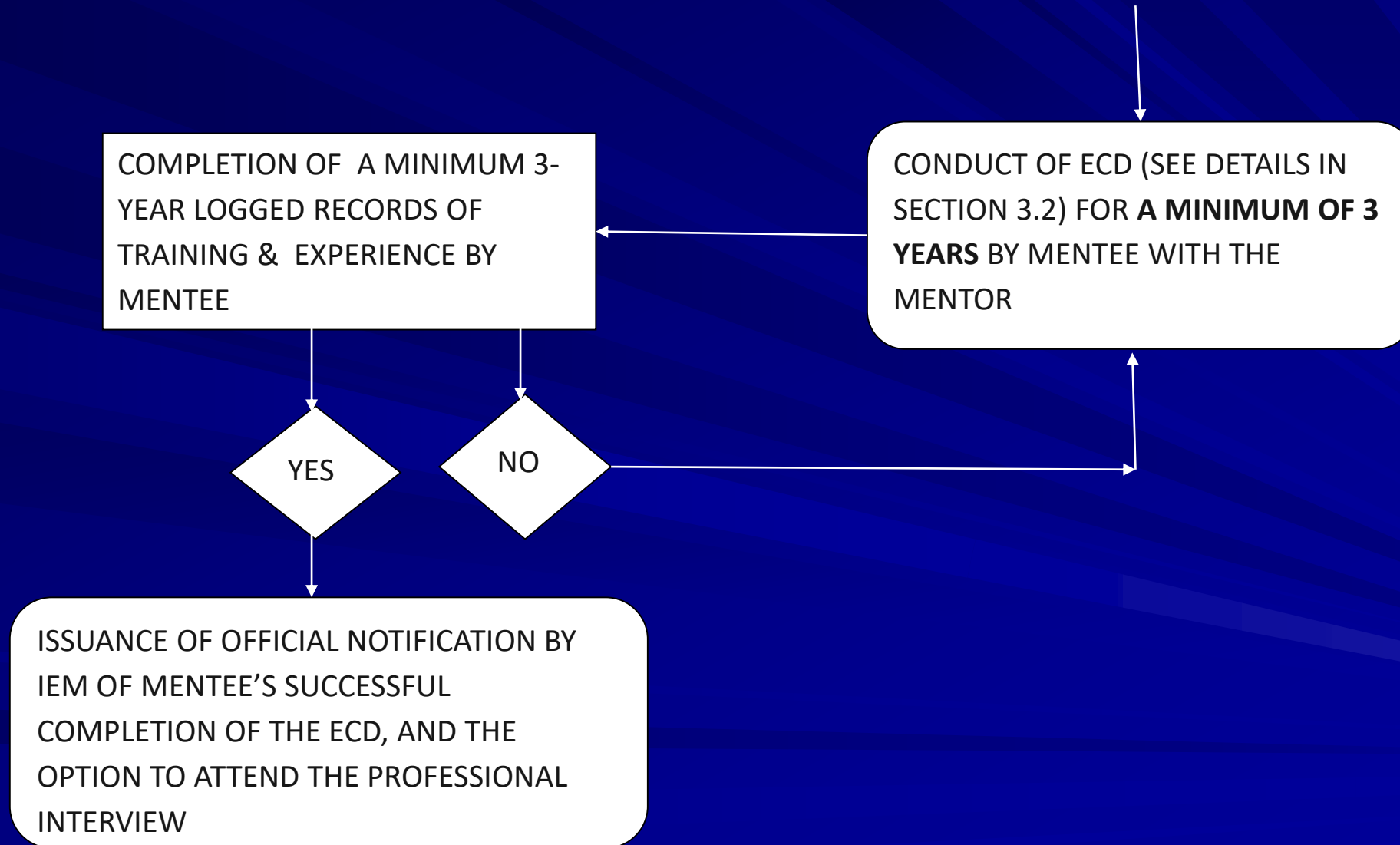
1. To assist Graduate Engineers **who are unable to obtain the supervision of a P.Eng.** in their own organisation.
2. To assist Graduate Engineers **obtain their practical experience under a formal training scheme** supervised by a Corporate Member of the Institution before appearing for the Professional Interview.

ACTIVITY FLOW DIAGRAM ON IEM'S ECD



Note:
Selection of Mentor is by Mentee but endorsement by IEM

ACTIVITY FLOW DIAGRAM ON IEM'S ECD



IEM Mentors Database

IEM Headquarters in Petaling Jaya, Selangor maintain a data base of mentors

- ✓ **Contact IEM Secretariat, Pn. Halimah Musa for the data base**

Email: halimah@iem.org.my

Tel: 03 – 7968 4001 / 2

Fax: 03 – 7957 7678

IEM Mentors Database

https://www.myiem.org.my/content/log_book_training_scheme_lbts_580.aspx

NEW!

IEM ECD Participants List - Mentor

The screenshot shows the IEM website interface. The main content area is titled "Log Book Training Scheme (LBTS)". It contains text explaining the scheme and a table of "Additional Information". A red arrow points to the "ECD PARTICIPANTS LIST_Mentor" row in the table.

Additional Information	Posted on		
IEM's Next Top Mentor Info	25-Jan-2019	Download	Post Comment
IEM ECD Mentorship Program Log File (.docx) Form	10-Jan-2019	Download	Post Comment
IEM ECD Mentorship Program Log Files (.pdf) Form	10-Jan-2019	Download	Post Comment
ECD PARTICIPANTS LIST_Mentee List	23-Nov-2018	Download	Post Comment
ECD PARTICIPANTS LIST_Mentor List	08-Mar-2019	Download	Post Comment
FAQs Info	03-Feb-2017	Download	Post Comment
IEM Log Book Form	04-Nov-2015	Download	Post Comment
IEM Log Book Guidelines Info	04-Nov-2015	Download	Post Comment

4.1

Guidelines for Mentees

Guidelines for Mentees

1. It is the Mentee who choose the Mentor.
 - ✓ *So Mentor must be of the **same discipline** and have **relevant experience** to give Mentee relevant guidance and advice.*
2. Mentee to check with his Employer on the **type** and **level of information** and **confidentiality** that can be shared with the Mentor when reporting his training and work experience.

Guidelines for Mentees

3. Plan and arrange the appointment with the Mentor on a regular basis, at least once in every THREE (3) months.
4. Meeting schedule and the mode of meeting shall be mutually agreed upon by both parties.
5. Prepare proper logged reports and documentation to be verified by the Mentor during the scheduled meeting.

Guidelines for Mentees

6. Log book must be sent to IEM **once a year** and **continuously** for minimum of **THREE (3)** **consecutive years** for verification by ECD Sub-Committee.

Once verified & endorsed by IEM, the Log Book will be returned to the Mentee.

7. The Mentee is allowed to **backdate** his working experience in the log book for a **maximum period of 1 year**.

Guidelines for Mentees

8. The Mentor should preferably be the **same person for the 3 consecutive years**. IEM should be notified if there is a change of mentor.
9. In the event that the Mentee wishes to **discontinue** with the ECD he/she needs to **inform both the Mentor & IEM** of his/her decision **in writing**.
10. The Mentee should make the effort to get the **training & experience necessary as required by Professional Interview Guidelines** within the mentorship period.

Guidelines for Mentees

11. To apply for Professional Interview with IEM, the Mentee must ensure that he/she has minimum **THREE (3) years relevant work experience inclusive meeting minimum design and site experience** related to his/her discipline.
12. Upon passing the Professional Interview with IEM, a Mentee has only a maximum of **ONE (1)** year to apply to the Board of Engineers (BEM) to be a Professional Engineer (PE)

4.2

Guidance for Mentors

MENTOR'S REQUIREMENTS

- ❑ Must be MIEM and a Professional Engineer for at least 3 years, and **be in a responsible position**
- ❑ PEs who are less than three (3) years as Corporate Members (MIEM) could be appointed as ECD Mentors provided they attend the ECD Engagement at least twice before being accepted as a Mentor
- ❑ Must not have more than 3 Mentees at any time
- ❑ Must be in the **same or related discipline** with the Mentee

RESPONSIBILITIES OF MENTORS

1. Provide guidance to young graduates.
2. Monitor progress of young graduates.
3. Assist graduates in their training programmes.
4. Review documentation of graduates to ensure adequate quality.

Roles & Responsibilities of Mentor

1. Meet with the Mentee, at least once in every THREE (3) months, to review and discuss issues relating to the Mentee's training for guidance and verification.
2. The Mentor should wherever possible **visit the Mentee's workplace at least once** during tenure of mentorship.
3. Where the **Mentor** is outside Mentee's organization, the Mentor is encouraged **to communicate with the Mentee regularly** by all available modes of communication.

Roles & Responsibilities of Mentor

4. Log Book is to be endorsed by the Mentor on a quarterly basis and the Mentor's PE stamp should be affixed, signed with date of endorsement.

The Mentor should also provide his/her comments in Log Book.

5. The Mentor should inform Mentee of his/her **weakness from time to time** and not wait until the last minute to inform that whatever Mentee has done so far is incorrect.

Roles & Responsibilities of Mentor

6. The Mentor needs to review and make advisory comments on the Mentee's training and experience and check for adequacy of the Log Book report so that the Mentee can use it to prepare for the Professional Interview.
7. The Mentor should encourage his/her Mentee to obtain relevant experience based on his/her area of expertise for the purpose of Professional Interview.

Roles & Responsibilities of Mentor

8. Mentor should advise the Mentee that **in addition to core engineering practices**, he/she should also obtain experience in the following areas:

- √ **Economics and Finance**
- √ Quality Systems
- √ **Environmental Management**
- √ Marketing
- √ **Energy Efficiency**
- √ Malaysian Law and Legal Systems of other countries

The training could probably be limited to the ratio of **80:20** inclined towards core engineering practices.

Roles & Responsibilities of Mentor

9. Advise on **other information and knowledge** such as ethics, environment and safety, business, economics and communication.

10. Check that the **minimum duration** spent in activities for **design, field and management experience** is obtained during the ECD period meet the P.I, requirements. E.g.:
 - Design / Office – Civil: 12 months
 - Site / Field – Civil: 12 months

Roles & Responsibilities of Mentor

11. It is advisable for the Mentor to **encourage and support the Mentee to sit for the Professional Interview** after the completion of the ECD provided Mentee has gained competencies required and has the necessary design and site experience.
12. **Advise the requirements and the process needed** for the Mentee to become a Professional Engineer with BEM and a Corporate Member of IEM.

Mentor's Role: At End of Year 3

PRACTICAL TRAINING & EXPERIENCE RECORDS SUMMARY

Annual Summary of Competencies Obtained

Category	Element	Brief Evidences	Mentor's Comments	Date
A Engineering Knowledge Application	A1			
	A2			
	A3			
B Problem Solving	B1			
	B2			
	B3			
C Management	C1			
	C2			
	C3			
	C4			
D Interpersonal Skill	D1			
	D2			
	D3			
E Professional Ethics	E1			
	E2			
	E3			
	E4			
	E5			

Mentor recommendations

Year 1/2/3 Recommendation

Support for PI

Require more exposure

Date

Section B under **Annual Summary of Competencies Obtained:**

Check whether Mentee meets all 18 Competencies Elements and tick either:

- Support for PI or
- Require more exposure

Mentor's Role: At End of Year 3



IEM PI A401
THE INSTITUTION OF ENGINEERS, MALAYSIA

Training & Experience Report
Jan 2019

Training and Experience Report

Annexe : Design and Site Experience

Applicant is expected to have sufficient design and site experience typically expected of a competent engineer. The design and site experience is also the mandatory requirements for a person to register with the Board of Engineers, Malaysia as a Professional Engineer.

The length of design and site experience differs from one engineering branch / discipline to another. This applies to the sub-branches of each major engineering branch. The following table gives the summary.

Engineering Branch and Related Sub Branches	Design Experience (Month)	Site Experience (Month)
Civil Engineering	12	12
Mechanical Engineering	6	12
Electrical Engineering	12	6
Electronic Engineering	6	12
Chemical Engineering	6	6
Other Branches of Engineering	6	6
Academicians (Lecturing Candidate)	Cumulative of 12 months in design and/or site	

IEM PI A401

Check / discuss with Mentee whether he has fulfill required **length of design and site experience** for his discipline

IEM PI A401



IEM THE INSTITUTION OF ENGINEERS, MALAYSIA

The Institution of Engineers, Malaysia

IEM PI A401

Training & Experience Report
Jan 2019

Annexe A		Design Experience
Date From / To	Evidence of Design Experience Transcribed from Competence Categories A and B	Duration (Month)
	Position : Nature of Job : Supervisor(P. Eng):	
	Position : Nature of Job : Supervisor(P. Eng):	
	Position : Nature of Job : Supervisor(P. Eng):	
Cumulative Total (Month)		



IEM THE INSTITUTION OF ENGINEERS, MALAYSIA

The Institution of Engineers, Malaysia

IEM PI A401

Training & Experience Report
Jan 2019

Annexe B		Site Experience
Date From / To	Evidence of Design Experience Transcribed from Competence Categories A and B	Duration (Month)
	Position : Nature of Job : Supervisor(P. Eng):	
	Position : Nature of Job : Supervisor(P. Eng):	
	Position : Nature of Job : Supervisor(P. Eng):	
Cumulative Total (Month)		

REWARD OF MENTORS

1. Personal satisfaction that you are responsible for the professional development of your Mentee.
2. **15 CPD points** per Mentee per year.
3. Recognition Letter
4. IEM's Next Top Mentor - Annual



Engineering Competency Development: Paving the Path for Future Professional Engineers



Author: Engineering Competency Development Committee
(formerly known as Log Book Training Scheme Sub-Committee)

In 1982, IEM initiated the Log Book Training Scheme (LBTS) programme to assist Graduate Members obtain their professional engineer qualification. The objective was to support graduate members in organisations which did not have a professional engineer with the same engineering discipline to act as mentor or supervising professional engineer.

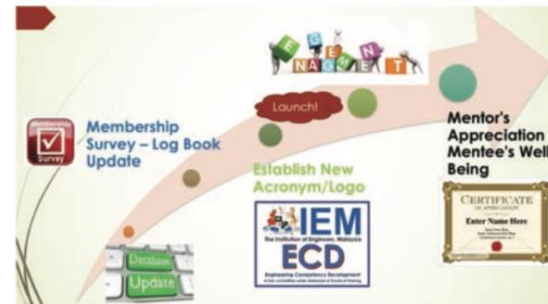
It is with this very core essence of its establishment and to support the change of professional engineer interview from outcome based to competency-based assessment that IEM has rebranded LBTS to Engineering Competency Development (ECD).

Since its inception, many graduate members have benefited from this programme. IEM shall continue to provide this service to graduate members with enhancements (the objectives of this rebranding exercise) to cater to changes in the IEM Professional Interview assessment format, the younger generation and advancements in the industry.

In this rebranding exercise, we concentrate on five elements: Database, Survey, Name, Engagement and Appreciation.

Firstly, membership to the ECD programme is not automatic. Neither was the LBTS. However, as the years went by, the programme accumulated a very long list of mentors and mentees, whether they were active or not. The list became meaningless and using manual tracking made it too complex and time consuming to utilise or maintain.

To streamline this issue, database clean-up was required. An invitation email/letter was sent out in December, 2017, to all mentors and mentees listed in the database. The objective was to update and confirm interest of each mentor and mentee to be maintained in the programme. Their replies were tabulated.



Elements of LBTS rebranding

Enrolling in the programme is voluntary since a graduate member can take other routes to become a professional engineer. We believe in concentrating our efforts and energy of our resources on graduate members who are serious about progressing in their professional careers. We volunteer because we believe in nurturing the engineering industry and this should be appreciated by the participants. The database clean-up exercise reduced the list of participants by more than half. The list of mentors and mentees will be listed in the ECD section for the reference of members.

Secondly, we conducted a survey of all the members in the old database with the objective to improve LBTS effectiveness for the candidates pursuing Professional Engineer Certification, to make

LBTS more effective for the mentor in helping their mentees and to collect information on areas of improvement that need to be considered during LBTS rebranding. The survey was conducted on the "survey monkey" platform from 5 January to 5 February, 2018. It was divided into 3 categories: Demographic Information, Engineer's Log and Overall Scheme.

The response was not encouraging but those concerned over the well-being of the LBTS programme, managed to voice out their opinions. One of the most important findings was that all respondents thought the programme was beneficial and relevant to their organisations and their career development. This was important to know because, if this programme was deemed irrelevant, it should be scrapped.

IEM'S NEXT TOP MENTOR 2018

ECD Committee is searching for the 5 Top Mentors who inspire, highly professional and have gone the extra mile to make you a Professional Engineer



- **Opens to all Mentees in the IEM Mentorship Program**
- **2019: 1 March to 30 March 2019**
- **Forms and Rules & Regulation available on IEM website**



Hey Mentees!

Does your mentor really inspires you?

ECD Committee is searching for the
5 Top Mentors who inspire, highly professional and
have gone the extra mile to make you a
Professional Engineer



ECD

Engineering Competency Development
(formerly known as Log Book Training Scheme)

Details on the IEM Website or halimah@iem.org.my

6.0

**IEM Structured Training
Program**

Structured Training Program (Design) or STPD

- √ A program made possible for graduate engineers, without or lacking in Design experience, to acquire/gain industry-typical and generic competencies to meet the PI candidacy's minimum-6 month criteria for the **Design/Office** experiential exposure
- √ Planned, implemented, monitored, and coordinated by the Special Committee on Structured Training (see IEM Website)

THE STPD

- √ The **STPD** has been developed from the Unit B1 of the Unit B Modules from the originally - initiated and precursor **Structured Training Program, or STP** (2013)
- √ The **STPD** perhaps better understood by first going into the background to understand the **STP**

THE (PRECURSOR) STP

AIMED TO FACILITATE OR COMPLEMENT THE PRACTICAL TRAINING AND DEVELOPMENT OF GRADUATE ENGINEER MEMBERS, BY PROVIDING :-

- √ GUIDELINES NARRATING THE INDUSTRY-TYPICAL AND GENERIC EXECUTIVE COMPETENCIES FOR THE RESPECTIVE PROFESSIONAL APPLICATION ACTIVITIES (PAAs)
- √ THE PAAs COVER THE FIVE PRIMARY ENGINEERING DISCIPLINES - CHEMICAL, CIVIL, ELECTRICAL, ELECTRONIC, AND MECHANICAL

THE (PRECURSOR) STP

- √ THE PAAs OF COMMON ATTRIBUTE TO ALL PRIMARY ENGINEERING DISCIPLINES WERE DESIGNATED AND ACCORDINGLY PREFIXED AS UNIT A MODULES
- √ THE PAAs OF SPECIFIC ATTRIBUTE TO A PRIMARY ENGINEERING DISCIPLINE WERE DESIGNATED AND ACCORDINGLY PREFIXED AS UNIT B MODULES

THE (PRECURSOR) STP

THE UNIT A MODULES WERE :-

Unit A1 : Engineering Practice

Unit A2 : Engineering Planning and Design

Unit A3 : Self Management in the
Engineering Workplace

Unit A4 : Engineering Management

THE (PRECURSOR) STP

THE UNIT B MODULES WERE :-

Unit B1 : Design *

Unit B2 : Engineering / Construction /
Operation/ Maintenance

Unit B3 : Research/Development
and Commercialization

* *adopted as basis to develop the STPD*

ECD versus [STP/STPD]

- √ Both the **ECD** and **[STP/STPD]** are training and development programs for Graduate Engineers
- √ The **ECD** provides training and development through assignment of an external Mentor to provide guidance in preparing a Graduate Engineer for the PI.
- √ The **STP** is a set of complementary programs to aid or facilitate general competency training and development of Graduate Engineers – irrespective of preparing, or otherwise, for the PI.

ECD versus [STP/STPD]

- √ The **STPD** is a complementary program to aid or facilitate training and development of competency in Design for Graduate Engineers – irrespective of whether the latter is preparing, or otherwise, for the PI.

It provides an industry typical practical design exposure - in the forms of modulated Design course program *and/or* a simulated Design Office work experiential situation – on proven (benchmarked) projects, to meet the minimum 6-month exposure in Design required for PI candidacy.

THE STPD

- √ In implementation - whether organized in the format of modulated Design course program *and/or* under simulated Design Office work situation – any STPD program will need to meet the equivalent experiential exposure manhour of [6 months x 22 man-days per month x 8 manhours per man-day].

This exposure is the total sum of activities for Design Work engagement with the Facilitator/Trainer(s) and for pre and post engagement preparatories by Graduate Engineer participants

THE STPD

- √ The **Design Work engagement** with the Facilitator/Trainer(s) have been planned to be held **on a Saturday, over** a total of **24 Saturdays, each session** commencing from **9 am to 5 pm.** – in the best possible format and mode of an engineering design office's work engagement situation.
- √ A **STPD program** is limited to a **maximum of 25 participants** – for quality assurance purpose and consideration.
It also requires **a minimum 6 participants** to enable commencement of a program.

THE STPD

- √ The fees applicable to the STPD program for a Graduate Engineer member range from **RM 8160 to RM 9600**, depending on the mode and conditions of payment.
The fees applicable to a Corporate Member, correspondingly, range from **RM 8640 to RM 9600**.
- √ The fees applicable to a a non-IEM member participant range from **RM 10,560 to RM 10,032** depending on mode of payment only
- √ Further details on the mode and conditions of payment are available in the IEM website.

THE STPD

Current planned and/or on-going STPD programs are :-

Chemical Engineering:

Design of Crude Oil Refinery & Tank Farm -
Premised on Process Safety & Environmental
Sustainability

Available 5 participants, including 2 already confirmed and 3 pending reconfirmation; planned for Sept 2019 if and upon attaining full quorum

THE STPD

Civil Engineering :

10 design topics/modules on Geotechnical completed.

Next program will be on Structural design

Separately, under planning is a collaborative effort between IEM and a GLC to conduct a program on Engineering Planning and Design for Sanitation and Plumbing

THE STPD

Electrical Engineering :

Modulated Electrical Engineering Design Course

Two programs already been completed, and the third is on-going and has completed its 6th week.

Separately, under planning is a collaborative effort between IEM and a GLC to conduct the program.

THE STPD

Mechanical Engineering :

Modulated design programs on Fire Protection (Fire Engineering Design for a 10-Story Building) and on Heating, Ventilation, and Air Conditioning (HVAC)

Completed a program on Fire Protection, but awaiting minimum quorum on the HVAC.

Separately, under planning is a collaborative effort between IEM and a GLC to conduct both the Fire Protection and HVAC programs

THE STPD

v

KEY QUESTIONS

How can and will the **STPD** program be practically useful and beneficial to :-

- ① an ECD (Log Book Training Scheme) mentee preparing for the PI?
- ② a Graduate Engineer who is not an ECD mentee, but individually preparing to sit for the PI (or the BEM's PAE, for the matter), and
- ③ a Graduate Engineer, whether an ECD mentee or otherwise, serving in the academia ?



Thank You

6.0

Q & A

Additional Notes (Oral Interview)

What are Competency Elements A1, A2, A3?

COMPETENCY CATEGORY A (Detailed)	
A	Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology.
A1	Maintain and extend a sound theoretical approach in enabling the introduction and exploitation of new and advancing technology and other relevant developments.
A2	Engage in the creative and innovative development of engineering technology and continuous improvement systems.
A3	Apply engineering knowledge related to local practices, codes, standards, specifications, materials, products, environmental plans and other requirements; and where appropriate, apply engineering knowledge contributed by others including suppliers, consultants, contractors, manufacturers, technologists, researchers and independent experts.

Competency Category A: Engineering Knowledge Application

Additional Notes (Oral Interview)

What are Competency Elements B1, B2, B3?

COMPETENCY CATEGORY B (Detailed)

B	Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems
B1	Identify potential projects and opportunities
B2	Conduct appropriate research and undertake design and development of engineering solutions.
B3	Implement design solutions, and evaluate their effectiveness.

Competency Category B: Problem Solving

Additional Notes (Oral Interview)

What are Competency Elements C1, C2, C3 & C4?

COMPETENCY CATEGORY C (Detailed)

C	Provide technical and commercial management.
C1	Plan for effective project implementation.
C2	Plan, budget, organise, direct and control tasks, people and resources.
C3	Lead teams and develop staff to meet changing technical and managerial needs.
C4	Bring about continuous improvement through quality management.

Competency Category C: Management

Additional Notes (Oral Interview)

What are Competency Elements D1, D2 & D3?

COMPETENCY CATEGORY D (Detailed)

D	Demonstrate effective interpersonal skills
D1	Communicate in English or Malay Language with other at all levels.
D2	Present and discuss proposals.
D3	Demonstrate personal and social skills

Competency Category D: Interpersonal Skills

Additional Notes (Oral Interview)

What are Competency Elements E1, E2, E3, E4 & E5?

COMPETENCY CATEGORY E (Detailed)

E	Demonstrate a personal commitment to professional standards, recognizing obligations to society, the profession and the environment
E1	Comply with relevant codes of conduct.
E2	Manage and apply safe systems of work.
E3	Undertake engineering activities in a way that contributes to sustainable development.
E4	Carry out continuing professional development necessary to maintain and enhance competence in own area of practice.
E5	Understand the legal matters pertaining to engineering profession and be able to communicate with legal personnel on these issues.

Competency Category E: Professional Ethics

Additional Notes (Written Essays)

9 Competency Elements under 3 Competency Categories for Written Essays – T, P & W

TECHNICAL ESSAY	
T	Evidence of technical competencies
W	Evidence of writing & reading competencies

ETHICAL ESSAY	
P	Evidence of competencies related to professional/ethical conduct
W	Evidence of writing & reading competencies

Additional Notes

TECHNICAL ESSAY	
T	Evidence of technical competencies
T1	Understands the scientific and engineering fundamentals of related discipline and own specialisation
T2	Applies the appropriate theoretical and practical methods to the analysis and solution of engineering problems
T3	Applies the engineering knowledge related to local practices, codes, standards, specifications, materials, products, environments etc.
W	Evidence of writing and reading competencies
W1	Understands the question clearly and answers with suitable technical contents and relevant examples
W2	Presents the answer with good structure, proper heading and paragraphing as well as conciseness, coherence and cohesion
W3	Presents the answer legibly with good grammar, lexicon, spelling and punctuation

Additional Notes

ETHICAL ESSAY	
P	Evidence of competencies related to professional/ethical conduct
P1	Understands IEM/BEM Code of Professional Conduct and contemporary ethical issues in the engineering profession
P2	Takes professional and ethical responsibility in actual work situation to enhance the honour and reputation of the engineering profession
P3	Understands the impact of engineering solutions in the larger context like society, environment, health, safety and public welfare
W	Evidence of writing and reading competencies
W1	Understands the question clearly and answers with suitable ethical contents and relevant examples
W2	Presents the answer with good structure, proper heading and paragraphing as well as conciseness, coherence and cohesion
W3	Presents the answer legibly with good grammar, lexicon, spelling and punctuation

The Professional Interview

What is Expected of Candidates in the Professional Interview?

- ❑ **Able to grasp the application of Engineering Principles**
- ❑ **Have the capacity to accept professional responsibilities**
- ❑ **Able to communicate clearly both orally & in writing**

What is Expected of Candidates in the Professional Interview?

Successful candidates in P.I. would have demonstrate competence in:

- ✓ Training & Experience Report (or Portfolio of Evidence Report)
- ✓ Technical Report
- ✓ Oral Examination
- ✓ Essay writing (Sec. A) – technical essay relating to practical experience
- ✓ Essay writing (Sec. B) – on regulations of Professional Conduct

Why Some Fail the Professional Interview?

- ✓ **Limited design experience**
- ✓ **Limited site / field experience**
- ✓ **Lack of communication and / or presentation skills**
- ✓ **Lack of written skills**
- ✓ **Lack of honesty**
- ✓ **Incompetence in engineering knowledge and applications**
- ✓ **Lack of understanding of Code of Ethics**