The Institution of Engineers, Malaysia

ECD

Engineering Competency Development

A Sub-committee under Admission & Practical Training

Engineering Competency Development Program

(previously known as Logbook Training Scheme)

ECD WORKSHOP

-ROUTE TO PROFESSIONAL ENGINEER

20 MAY 2023

Moderator

Ir. Al-Khairi Mohd. Daud

Committee

Engineering Competency Development

Welcome to the IEM ECD e-Workshop!

- Session will go on from 9.00 am to 5.00 pm (Lunch: 1.00 – 2.00 pm)
- Session 1 (9.00 am – 1.00 pm): Talk (3 hours), Q & A (1 hour)
- Session 2 (2.00 pm – 5.00 pm): Talk (2 hours), Q & A (1 hour)
- Questions can be typed on Chat menu at the Control Panel
- Questions shall be entertained at the end of each session
- Feedback Email: ecd@iem.org.my

TIME	AGENDA
09.00 am	**Introduction – ECD Program** **The ECD Sub-Committee** **Guidelines for Mentee / Mentor**
10.30 am	**Q & A (ECD)**
11.00 am	**The Logbook** • Introduction / Section A / Section B
12.30 pm	**Q & A (ECD)**
01.00 pm	**LUNCH**
02.00 pm	**The Logbook (Cont'd)** • Section C / Section D / Section E
	The Professional Interview
	The Way Forward
04.00 pm	**Q & A (ECD)**
05.00 pm	**END**

IEM
The Institution of Engineers, Malaysia
ECD
Engineering Competency Development
A Sub-committee under Admission & Practical Training

The Speakers

Ir. Assoc. Prof. Dr Lee Tin Sin
Committee
Engineering Competency Development

Ir. Ts Dr Talib Din
Committee
Engineering Competency Development

The Sub-Committee

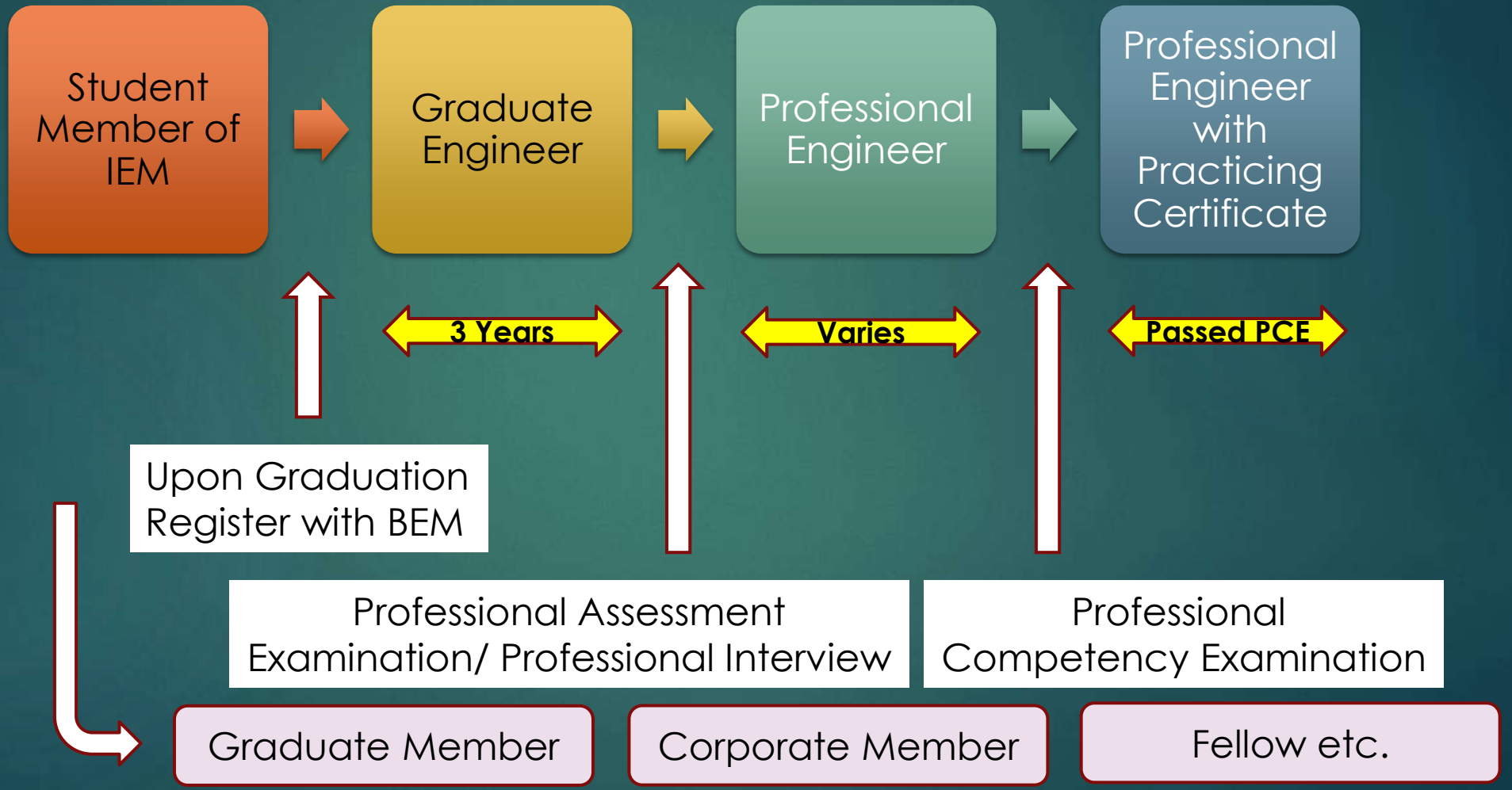
ENGINEERING COMPETANCY DEVELOPMENT SUB-COMMITTEE	
Discipline	**Member**
IEM Secretariat	Pn. Halimah / Cik Farezah Email: **ecd@iem.org.my or** **halimah@iem.org.my / farezah@iem.org.my** Tel : 03 – 7968 4025/4007
Electrical/Electronics	Ir. Mohd. Azha bin Abu Samah (Chairman)
	Ir. Dr Vigna Kumaran
Chemical	Ir. Juares Rizal bin Abdul Hamid (Advisor)
	Ir. Assoc. Prof. Dr Lee Tin Sin
	Ir. Razmahwata bin Mohamad Razzalli
Mechanical	Ir. Al-Khairi Mohd. Daud
	Ir. Ts. Dr Abdul Talib
Civil	Dato' Ir. Hj. Rozlan Ahmad Zainuddin
	Ir. Han Seng Kong
	Ir. Lau Eng Kee
Petroleum	Ir. Abdul Razak bin Yakob (Past Chairman)

Workshop Objectives

- Describe Engineering Competency Development's role in developing IEM graduate engineers
- Identify the path you need to take to be a Professional Engineer
- Develop your own engineer's log to cater for competency base submission requirements

Introduction –
The Route You Choose

Where are you heading to?



Board of Engineers Malaysia (BEM)

ROUTE TO BECOME A PROFESSIONAL ENGINEER

A		B		C
Route A (Professional Assessment Examination)	or	**Route B (Route for a Professional Engineer from an overseas Regulatory Body)**	or	**Route C (Corporate Member of IEM)** **IEM Professional Interview**
I. has obtained 3 years practical experience as specified in Regulation 22(1) which shall include the following: a. at least two years of general training that will provide a sound basis for professional development; and b. at least one year of professional career development and training providing wide exposure to the various managerial and technical expertise in engineering practice where; c. at least one year of the above training must be obtained in Malaysia under the supervision of a Professional Engineer in the same branch of engineering as that practised by the Graduate Engineer.		I. Applicant shall pass Code of Conduct Assessment based on Registration of Engineers Act 1967 (Revised 2015); II. Applicant shall submit to BEM a certified latest Professional Engineer Certificate issued by a Regulatory Body of other country; III. The professional engineers status shall be check that it is equivalent to BEM's professional engineer qualifications eligibility; IV. The applicant is not entitle to be registered as a Professional Engineer if at any time prior to his registration there exist any facts or circumstances which would have entitled the Disciplinary Committee to cancel his registration pursuant to Section 15 of the Registration of Engineers Act 1967 (Revised		I. A Corporate Member of the Institution of Engineers Malaysia (IEM) II. has complied with the requirements as determined by the Board as follows: a. has obtained 3 years practical experience as specified in Regulation 22(1) which shall include the following: i. at least two years of general training that will provide a sound basis for professional development; and ii. at least one year of professional career development and training providing wide exposure to the various managerial and technical expertise in engineering practice where; iii. at least one year of the above training

http://bem.org.my/web/guest/professional-engineer

Board of Engineers Malaysia (BEM)

Route C: Corporate Member of IEM

I. A Corporate Member of the Institution of Engineers Malaysia (IEM)

II. has complied with the requirements as determined by the Board as follows:
   a. has obtained **3 years practical experience** as specified in Regulation 22(1) which shall include the following:
      i. at least two years of general training that will provide a sound basis for professional development; and
      ii. at least one year of professional career development and training providing wide exposure to the various managerial and technical expertise in engineering practice where;
      iii. at least **one year** of the above training **must be obtained in Malaysia** under the supervision of a Professional Engineer in the same branch of engineering as that practiced by the Graduate Engineer.
         - Professional Engineers in other related branches of engineering may be accepted with the prior approval of the Board

http://bem.org.my/web/guest/professional-engineer

Board of Engineers Malaysia (BEM)

Pre-requisites for Route A (BEM Professional Assessment Examination) and Route C (IEM Professional Interview):

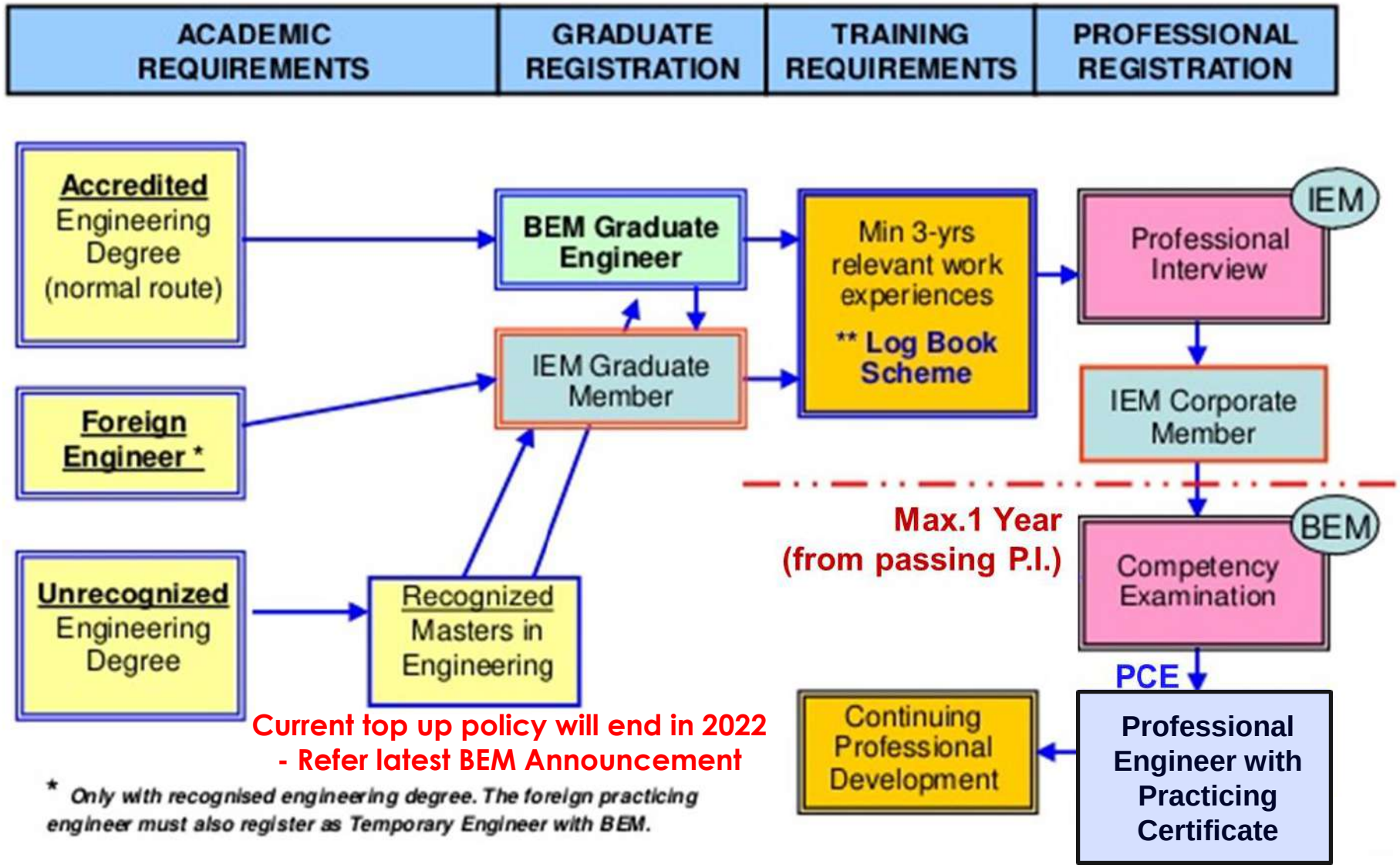
- **Minimum 3 years** registration with Board of Engineers Malaysia as a Graduate Engineer.

- **Minimum 3 years** relevant engineering working experience with **at least 1 year in Malaysia** under the **supervision of a Professional Engineer registered in the same branch of engineering** as that practiced by the Graduate Engineer.

http://bem.org.my/web/guest/professional-engineer

Institution of Engineers Malaysia

Route to MIEM / Professional Engineer



Announcement on BEM Policy for Unrecognised 3-YEAR Engineering Programmes (B.Eng. or B.Sc.Eng.)

BEM does not recognise 3-year B.Eng. or B.Sc.Eng. programmes conducted locally even though they are accredited by Malaysian Qualifications Agency (MQA).

CURRENT TOP-UP POLICY ENDS IN 2022

Under the current policy, applicants with such academic qualifications may be accepted for Graduate Engineer (GE) registration on completion of an engineering Masters programme by coursework (in the same or related engineering branch as the basic degree) from any universities where their Bachelor degrees in the related branch are accredited or recognised by the Board. 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.

This current policy will end in December 2022. However, potential applicants who have completed or on enrolment of such Masters programmes on or before 31st December 2022 will not be affected by the new policy.

NEW TOP-UP POLICY BEGINS IN 2022 FOR TWO YEARS

Beginning 1st January 2022, graduates of local 3-year B.Eng. or B.Sc.Eng. programmes will be required to take special 2-year top-up engineering programmes from designated local universities in order to fulfil the requirements for Graduate Engineer (GE) registration. The details of this programme shall be made available at a later date. The application for registration as GE will still be considered on a case to case basis.

This new policy (for local 3-year B.Eng. or B.Sc.Eng. programmes) 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 intake of 2024 onwards from local 3-year B.Eng. or B.Sc.Eng. programmes will no longer have any pathway to be registered as Graduate Engineers with BEM.

For further info, kindly contact BEM Secretariat.

(347th Board meeting held on 13.10.2021)

http://bem.org.my/web/guest/top-up-policy

BEM-Graduate Assessment Program (BEM-GAP)

The Board of Engineers Malaysia (BEM) has introduced a 2-year top-up program called BEM-Graduate Assessment Program (BEM-GAP). The program can be used as a pathway for the following purposes:

1) Registration as a Graduate Engineer

a. Local 3-Year Bachelor of Engineering Degree accredited by Malaysian Qualifications Agency (MQA)
b. First cycle (Bachelor degrees) listed in FEANI (European Engineering Education Database - EEED) database with EUR-ACE label
c. 3-year Bachelor of Engineering accredited by Engineering Council, UK (requiring further learning for CEng application purpose)

2) Change of Registered Engineering Branch (Graduate Engineer)

d. Change of branch for registered Graduate Engineer (sub-branch to main branch)

Eg: Manufacturing to Mechanical

For further info, kindly contact BEM Secretariat.

http://bem.org.my/web/guest/bem-graduate-assessment-program-bem-gap-1

BEM-Graduate Assessment Program (BEM-GAP)

The Board has also agreed to implement BEM-GAP as a pilot program at the following Universities with effect from **January 1, 2022:**

i) **Universiti Kebangsaan Malaysia** (Civil engineering)
ii) **Universiti Malaya** (Chemical engineering)
iii) **Universiti Tenaga Nasional** (Electrical engineering)
iv) **Universiti Teknologi Malaysia** (Mechanical engineering)

In summary, the implementation of BEM-GAP is as follows:

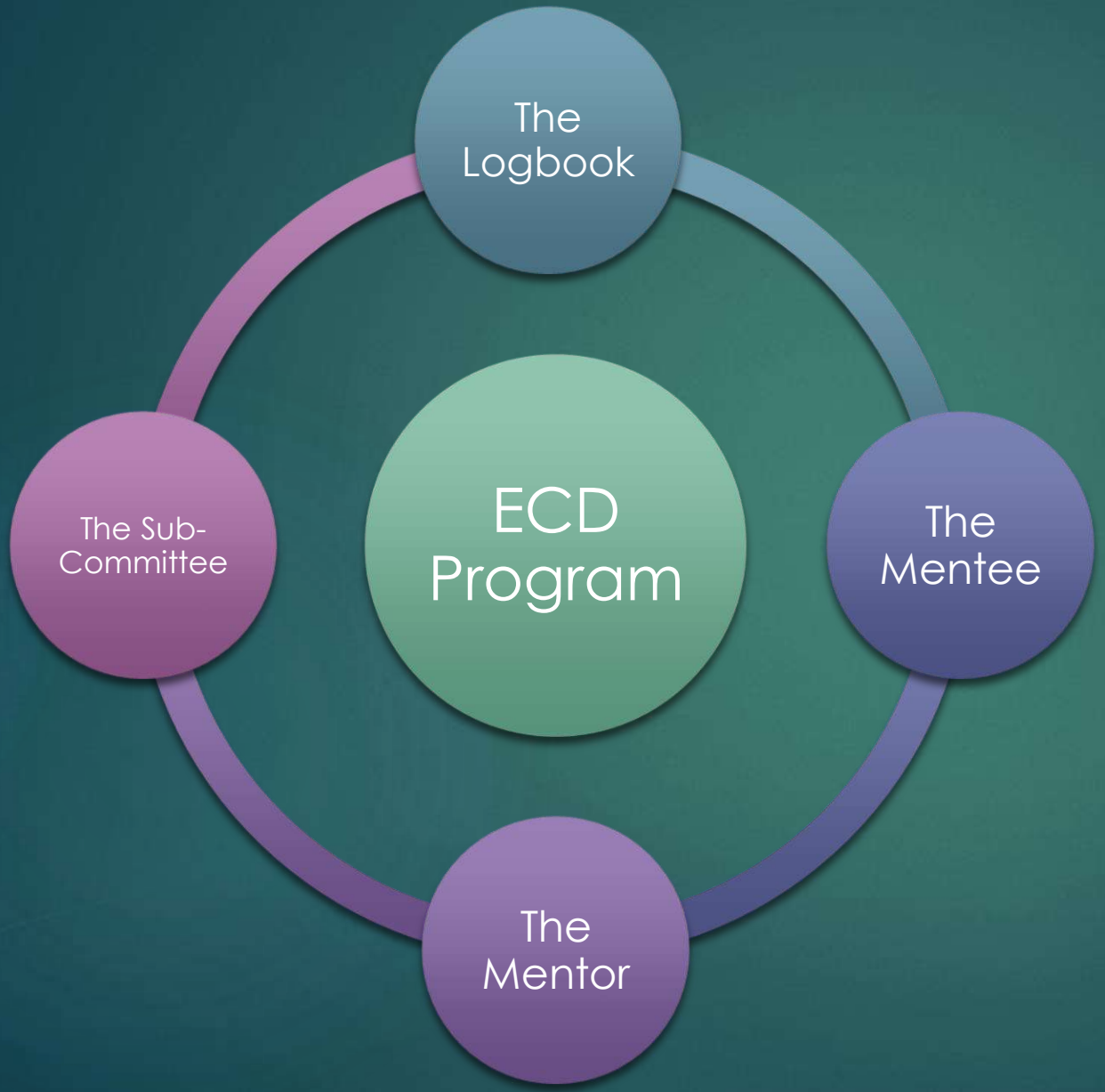
Type of Program		Last Intake to Master's Degree	May Enroll to BEM-GAP
Registration as a Graduate Engineer	Local MQA accredited 3-Year BEng	Master's degree intake by 31.12.2022 Click here: Master's Topping-up Guideline	The 3-year BEng/BSc engineering graduates will be allowed to take the BEM-GAP w.e.f. January 1st, 2022 to enable them to register as GE. The IHLs concerned may give them up to 30% credit exemption and may add selected elective advanced engineering courses in their branch.
	3-year BEng accredited by Engineering Council, UK (CEng requiring further learning)		
	FEANI (EEED) – First cycle/ Tier degrees **Candidate in this category may still uses FEANI 2nd cycle degree for topping-up purpose.		
Change of branch for Registered Graduate Engineer	Change of Branch (via Master's degree coursework or mixed mode)	Master's degree intake by 31.12.2021 Click here: Master's Topping-up Guideline	Topping-up via a Master's degree (coursework/mixed mode), shall cease and be replaced by BEM-GAP w.e.f. 1.1.2022. However, candidates who are currently enrolled in a master's degree on or before 31.12.2021 for the purpose of changing branch are not affected by this latest decision.

For further info, kindly contact BEM Secretariat.

http://bem.org.my/web/guest/bem-graduate-assessment-program-bem-gap-1

The ECD Program

The Program
The Big Picture



The Big Picture 2

Mentee Register

Choose a Mentor

Quarterly Meeting

Report reviewed by Mentor

Annual Report Submission

3 years

Reviewed by Committee

Professional Interview

Training & Experience Report

Technical Report

IEM
The Institution of Engineers, Malaysia

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

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Engineering Competency Development (ECD)

Home / Membership / Engineering Competency Development (ECD)

The Engineering Competency Development (ECD) program implemented by T
Malaysia (IEM) aims to provide guided and proper training to IEM Gradu
profession of engineering, to facilitate conformance of such training pr
concerning admission of Corporate Members. A Graduate Engineer sha
competency development program accordingly while being monitored and/o
Mentor to facilitate his/her preparation for Professional Interview (PI).

The ECD program requires a training and experience exposure duration for
(3) continuous years; this requirement complies to the Professional Intervie
that a Candidate shall have at least THREE (3) years (after graduation with
degree) of approved experience in planning, design, execution or managen
and relevant for the profession of an engineer. Progress will be mutually
and/or mentored at least once every quarterly by both the Mentee Graduat
Please refer to the list below for the necessary forms and format of logbook.

Participation in the ECD program is not obligatory. However, particip
recommended particularly for Graduate Engineers who are starting or are alr
job and/or other modes of training experience but under a supervision of an I
a Professional Engineer(s) who are not from the same engineering discipline c

Graduate Engineers interested in participating in the progam may contact the
4007 or email ecd@iem.org.my for further information.

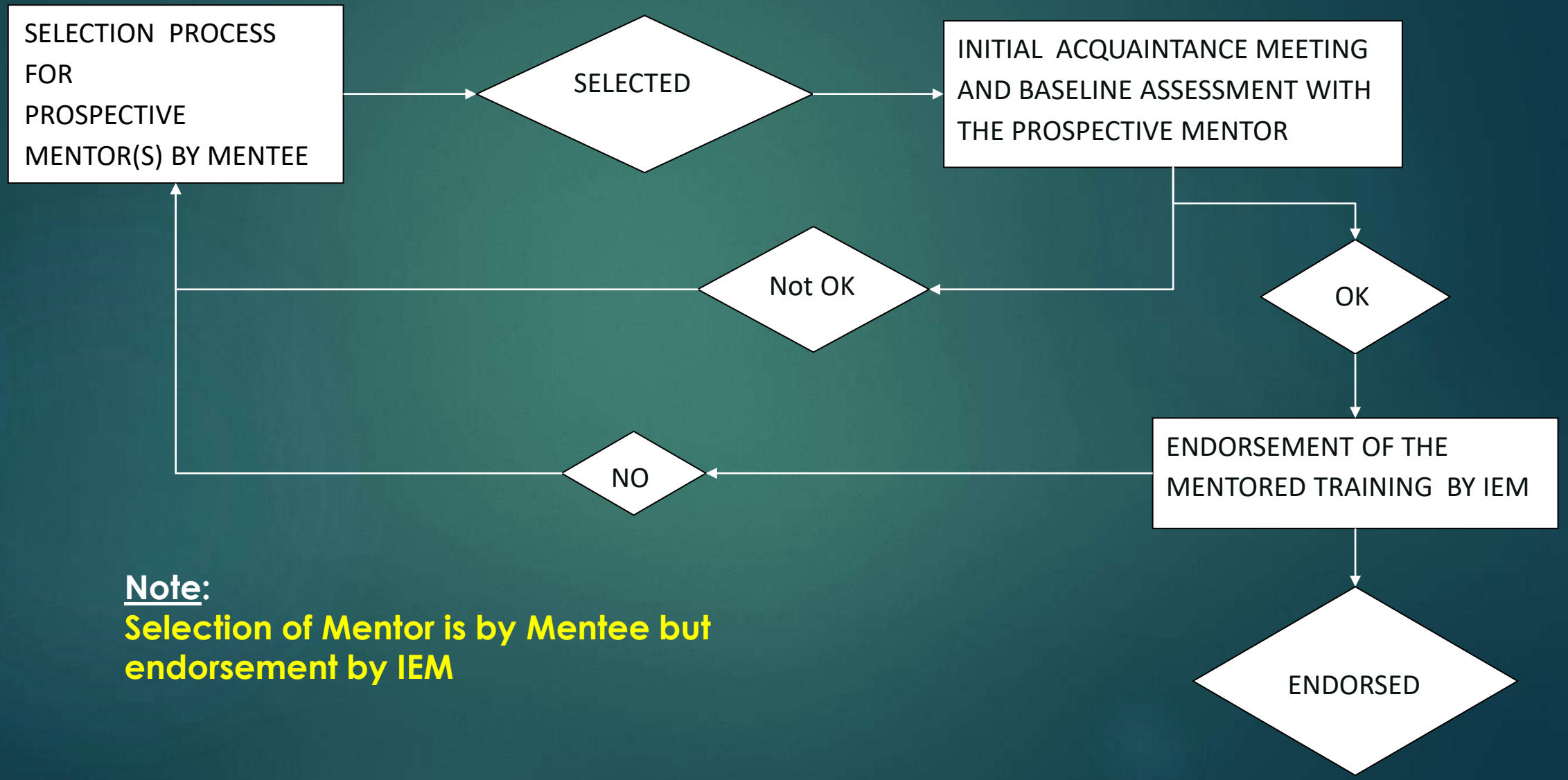
Additional Information	Posted on		
IEM ECD - FAQs Info	17-Sep-2020	Download	Post Comment
IEM ECD Senior Mentor Criteria Info	02-Jul-2021	Download	Post Comment
IEM ECD Senior Mentor List List	02-Jul-2021	Download	Post Comment
IEM ECD Guidelines Info	02-Jul-2021	Download	Post Comment
IEM ECD Mentee Registration Form	02-Jul-2021	Download	Post Comment
IEM ECD Mentor Registration Form	01-Mar-2021	Download	Post Comment
IEM ECD Mentorship Program Log File (.docx) Form	19-Feb-2021	Download	Post Comment
IEM ECD Mentorship Program Log Files (.pdf) Form	19-Feb-2021	Download	Post Comment
IEM ECD Mentor List List	02-Jul-2021	Download	Post Comment
IEM ECD Mentee List List	02-Jul-2021	Download	Post Comment

Why IEM brings to you ECD?

To assist **Graduate Engineers** who are unable to obtain the **supervision** of a P.Eng. in their own organization.

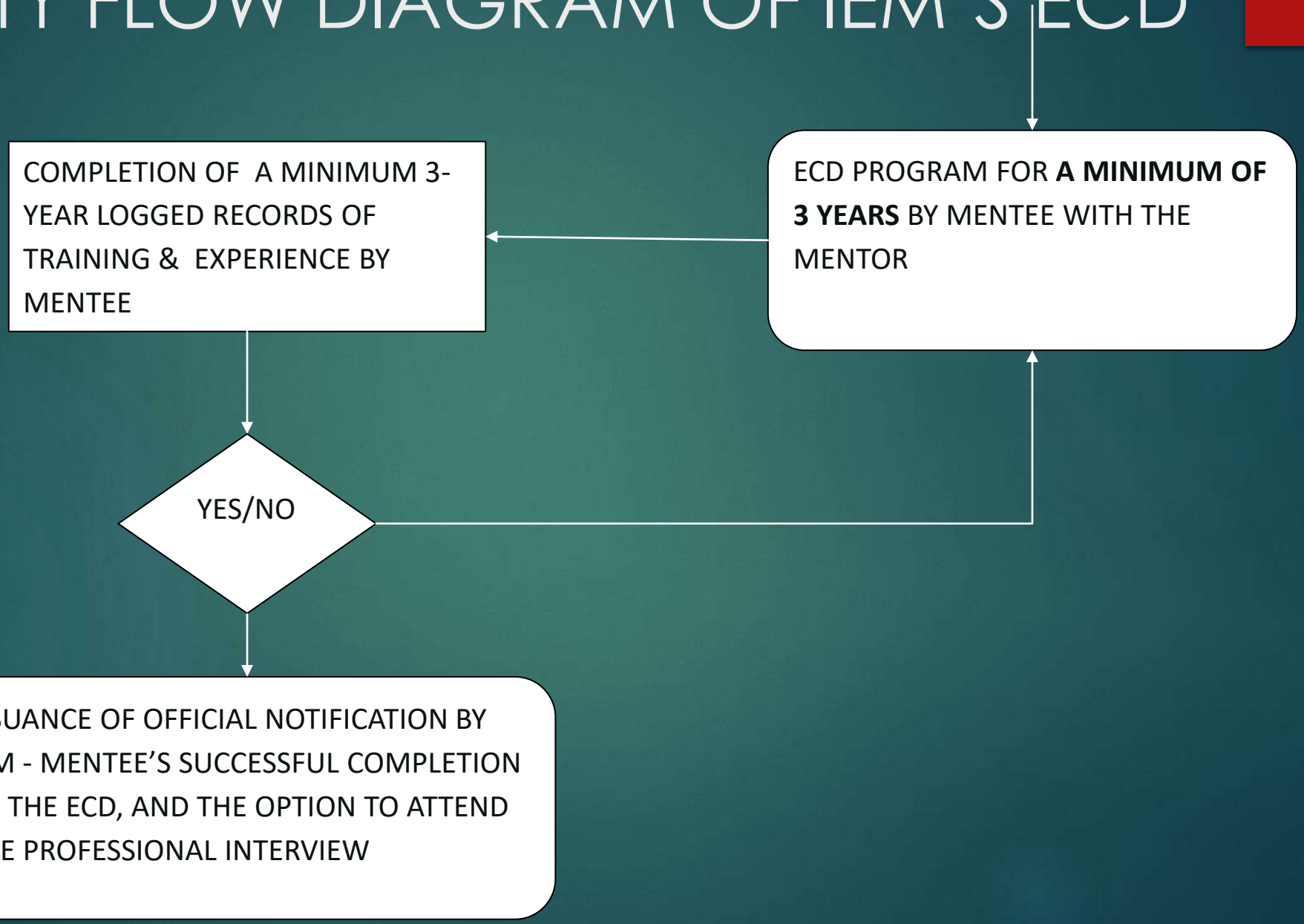
To assist **Graduate Engineers** obtain their **practical experience** under a formal training scheme supervised by a Corporate Member of the Institution before appearing for the Professional Interview.

ACTIVITY FLOW DIAGRAM OF IEM'S ECD

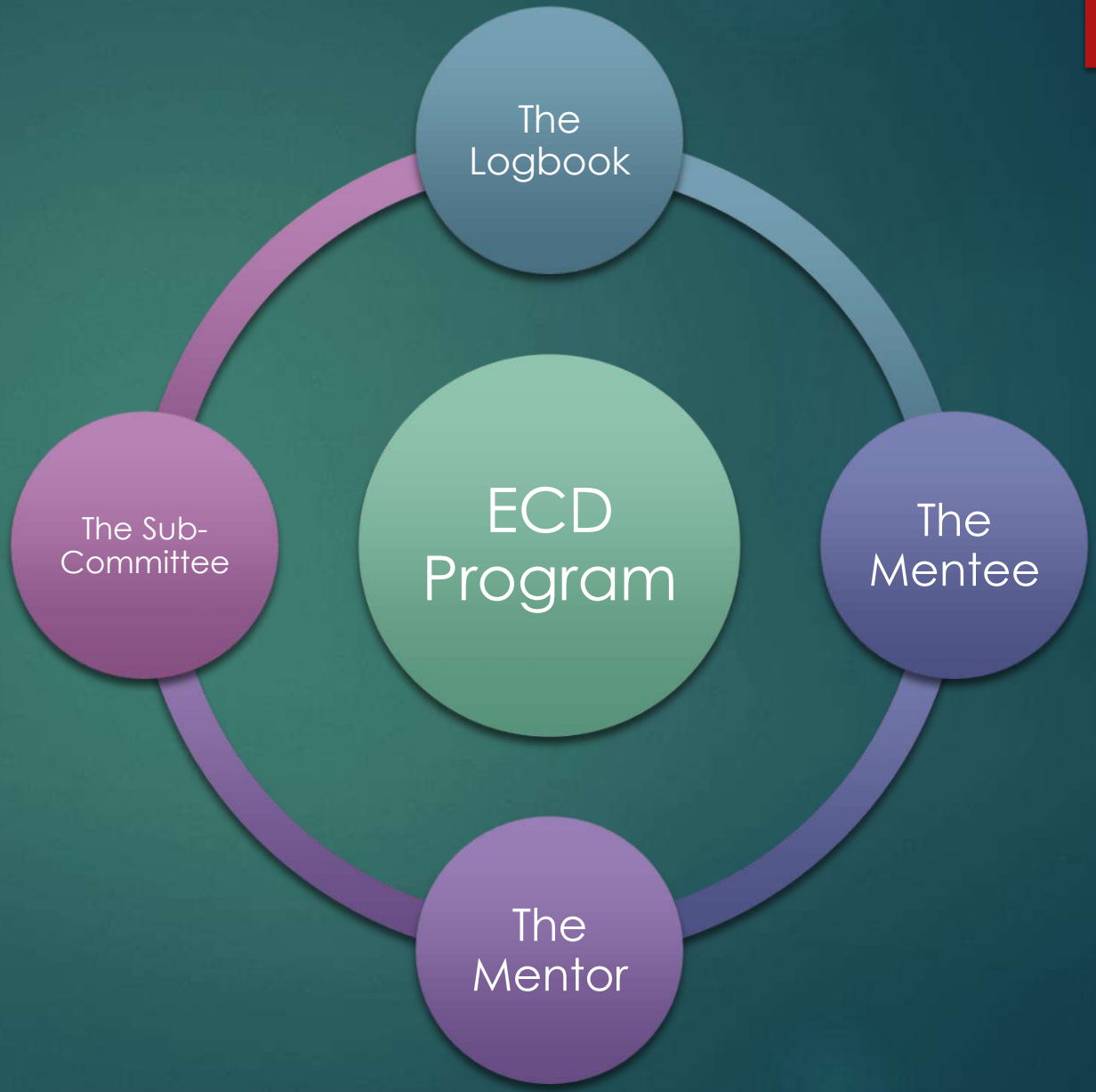


Note:
Selection of Mentor is by Mentee but endorsement by IEM

ACTIVITY FLOW DIAGRAM OF IEM'S ECD



The Program
The Big Picture



The Mentee

Guidelines for Mentees

1. It is the Mentee who choose the Mentor.
   - ✓ *Mentor must be of the same discipline and have relevant experience to give Mentee relevant guidance and advice.*

2. Plan and arrange the appointment with the Mentor on a regular basis, at least once in every THREE (3) months.

3. Prepare proper logged reports and documentation to be verified by the Mentor during the scheduled meeting.

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

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Engineering Competency Development (ECD)

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List of IEM Mentors

List of IEM Mentors

Guidelines for Mentees

4. Logbook 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 Logbook will be returned to the Mentee.

5. The Mentee is allowed to backdate his working experience in the logbook for a maximum period of 1 year.

Guidelines for Mentees

6. The Mentor should preferably be the same person for the 3 consecutive years. IEM should be notified if there is a change of mentor.

7. In the event that the Mentee wishes to discontinue with the ECD he/she needs to inform both the Mentor and IEM of his/her decision in writing.

8. 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

9. To apply for Professional Interview with IEM, the Mentee must ensure that he/she has minimum competencies and THREE (3) years relevant work experience inclusive meeting minimum design and site experience related to his/her discipline.

10. 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)

The Mentor

Criteria to be an IEM ECD Mentor

- Must be a Corporate Member (FIEM, SMIEM or MIEM) **AND** Must be a Professional Engineer (PE) registered with Board of Engineers, Malaysia (BEM) for at least three (3) years **AND**
- Must attend the IEM Mentors Engagement Talk/Workshop session AND PI Workshop at least once, AND
- Must not have more than 3 Mentees at any time
- Must be in the same or related discipline with the Mentee

General Responsibilities of a Mentor

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

Roles & Responsibilities of Mentor

3. 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.

4. 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.

Roles & Responsibilities of Mentor

5. The Mentor should encourage his/her Mentee to obtain relevant experience/competencies based on his/her area of expertise for the purpose of Professional Interview.

6. Check that the minimum duration spent in activities for design and site/field 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

7. 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.

8. 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

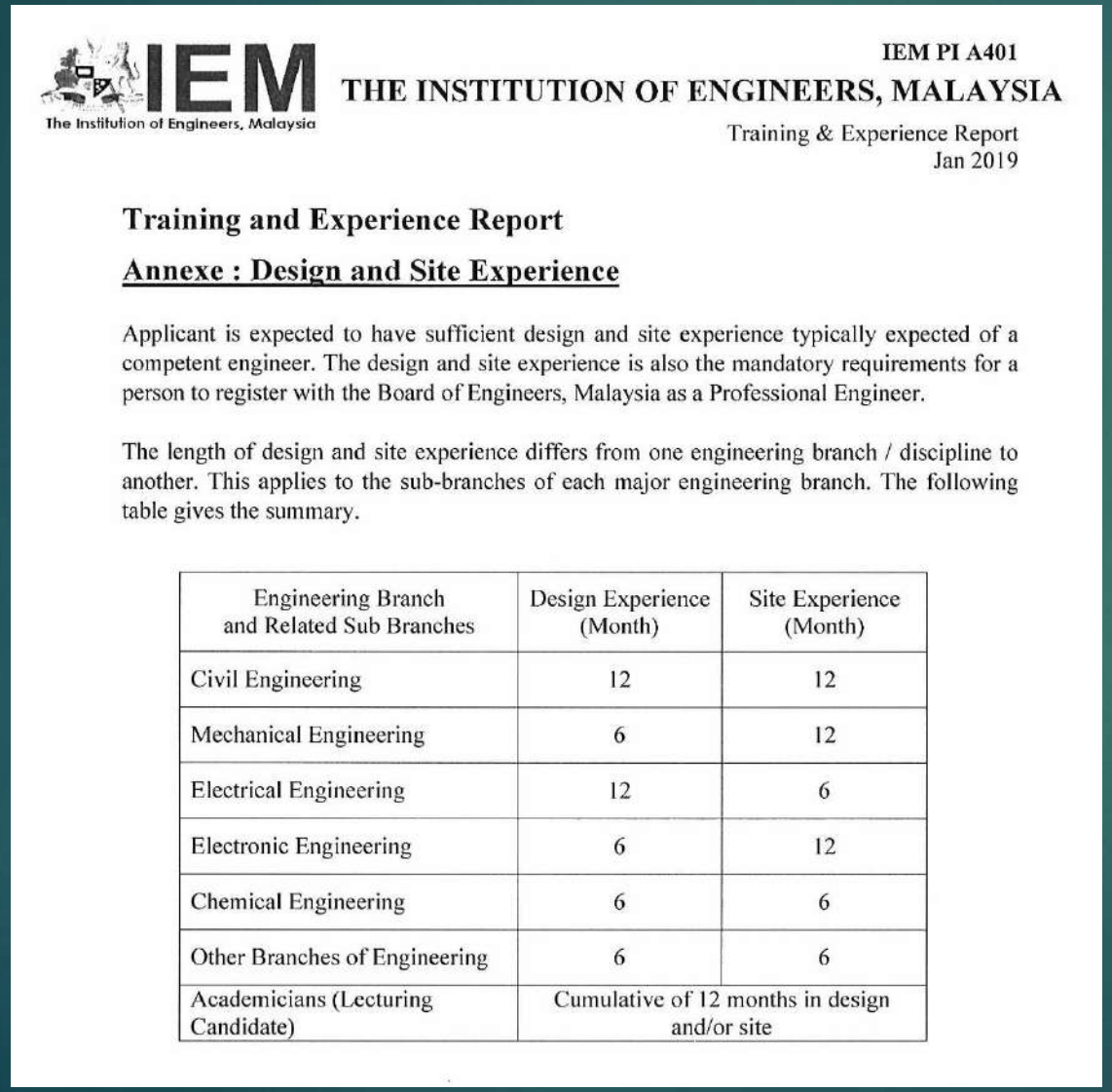
Year 1/2/3 Recommendation	
Support for PI	
Require more exposure	
Date	

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

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 fulfilled required length of design and site experience for his discipline

IEM PI A401

IEM PI A401

IEM THE INSTITUTION OF ENGINEERS, MALAYSIA

The Institution of Engineers, Malaysia

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)

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IEM THE INSTITUTION OF ENGINEERS, MALAYSIA

The Institution of Engineers, Malaysia

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

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

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A Sub-committee under Admission & Practical Training

The Logbook

Board of Engineers Malaysia (BEM)

ROUTE TO BECOME A PROFESSIONAL ENGINEER

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http://bem.org.my/web/guest/professional-engineer

Board of Engineers Malaysia (BEM)

Registration of Engineers Act (REA)

Three (3) Routes to Professional Engineers (PE)

A registered Graduate Engineer who :

1. Has passed a **professional assessment examination (PAE)** conducted by the Board;
2. Holds a **professional qualification** which the Board considers to be equivalent to the professional assessment examination conducted by the Board;
3. Is a **Corporate Member of the Institution of Engineers, Malaysia (MIEM).**

What is Expected of Candidates in the IEM Professional Interview?

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

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

Highlights of the IEM P.I. Process

Key Terms	Definition / Description
Competency Category (A-E) **5**	A group of Competency Elements that are classified under **a broad area of professional competency** required for the assessment in Professional Interview.
Competency Element (3-5 per category, total 18) **18**	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.

What are the **5** Competency Categories?

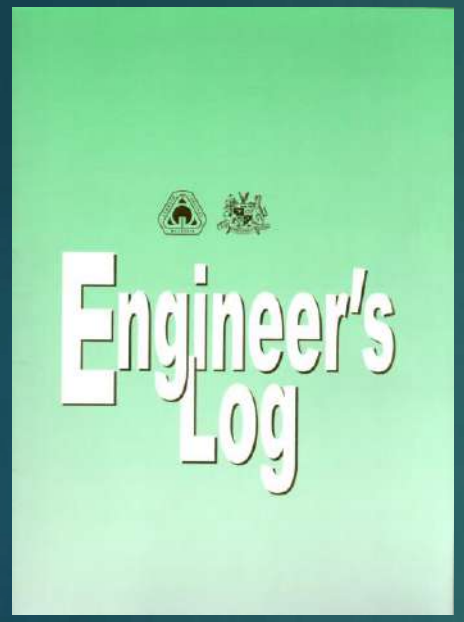
Interviewers will probe the five competency and commitment statements as follows:

A	B	C	D	E
• Engineering Knowledge Application	• Problem Solving	• Technical and Commercial Management	• Interpersonal Skills	• Professional Ethics

Engineering Discipline Specific — **Common Skills** — **Professional Commitment**

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

What Is In The Log-Book?



Available ONLINE at IEM webpage

Section A – Particulars of Log-Book Scheme

Section B – Summary of Practical Training and Experience

Section C – Practical Training Record (3 Months Period)

Section D – Courses Attended (Advisable)

Section E – Professional Career Development Activities

IEM
The Institution of Engineers, Malaysia

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

Home | Technical Division | Directory | Membershi

Engineering Competency Development (ECD)

Home / Membership / Engineering Competency Development (ECD)

The Engineering Competency Development (ECD) program implemente
Malaysia (IEM) aims to provide guided and proper training to IEM
profession of engineering, to facilitate conformance of such traini
concerning admission of Corporate Members. A Graduate Enginee
competency development program accordingly while being monitored
Mentor to facilitate his/her preparation for Professional Interview (PI).

The ECD program requires a training and experience exposure duratic
(3) continuous years; this requirement complies to the Professional I
that a Candidate shall have at least THREE (3) years (after graduatic
degree) of approved experience in planning, design, execution or ma
and relevant for the profession of an engineer. Progress will be mu
and/or mentored at least once every quarterly by both the Mentee Gi
Please refer to the list below for the necessary forms and format of logl

Participation in the ECD program is not obligatory. However,
recommended particularly for Graduate Engineers who are starting or
job and/or other modes of training experience but under a supervision
a Professional Engineer(s) who are not from the same engineering disci

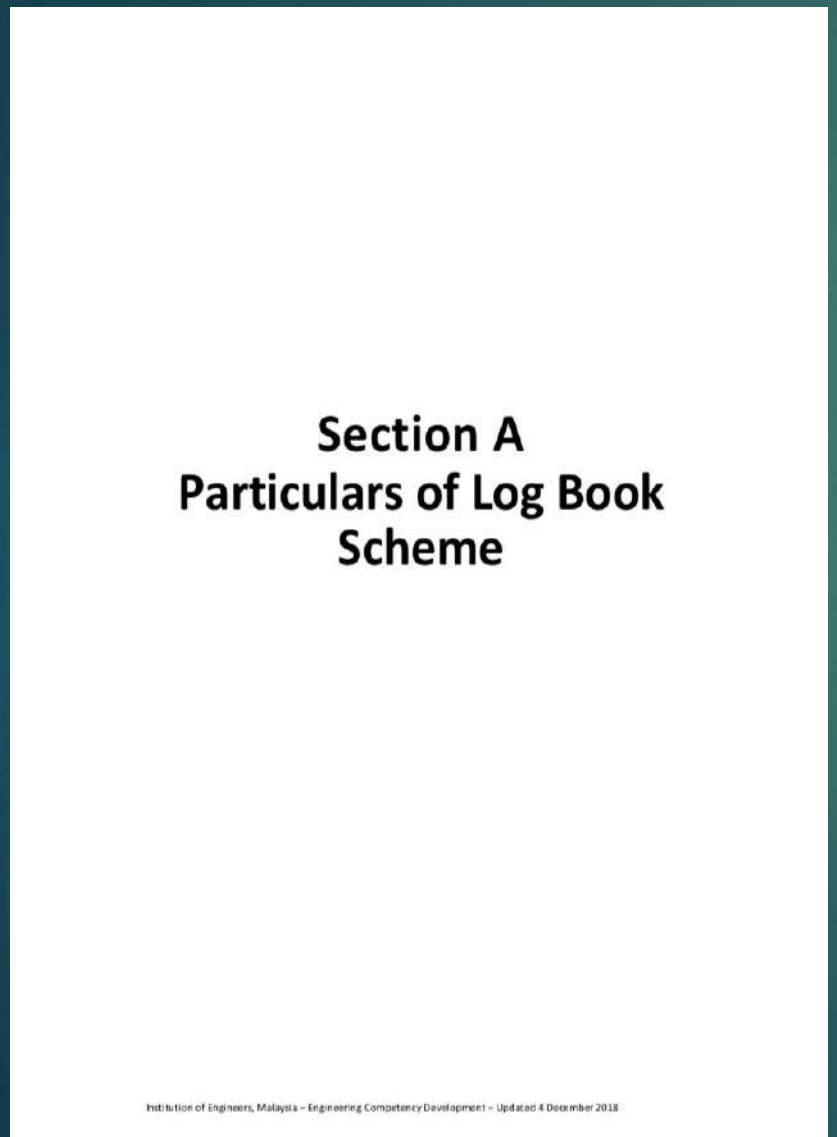
Graduate Engineers interested in participating in the progam may conta
4007 or email ecd@iem.org.my for further information.

Additional Information	Posted on		
IEM ECD - FAQs Info	17-Sep-2020	Download	Post Comment
IEM ECD Senior Mentor Criteria Info	02-Jul-2021	Download	Post Comment
IEM ECD Senior Mentor List List	02-Jul-2021	Download	Post Comment
IEM ECD Guidelines Info	02-Jul-2021	Download	Post Comment
IEM ECD Mentee Registration Form	02-Jul-2021	Download	Post Comment
IEM ECD Mentor Registration Form	01-Mar-2021	Download	Post Comment
IEM ECD Mentorship Program Log File (.docx) Form	19-Feb-2021	Download	Post Comment
IEM ECD Mentorship Program Log Files (.pdf) Form	19-Feb-2021	Download	Post Comment
IEM ECD Mentor List List	02-Jul-2021	Download	Post Comment
IEM ECD Mentee List List	02-Jul-2021	Download	Post Comment

What Is In The Log-Book?

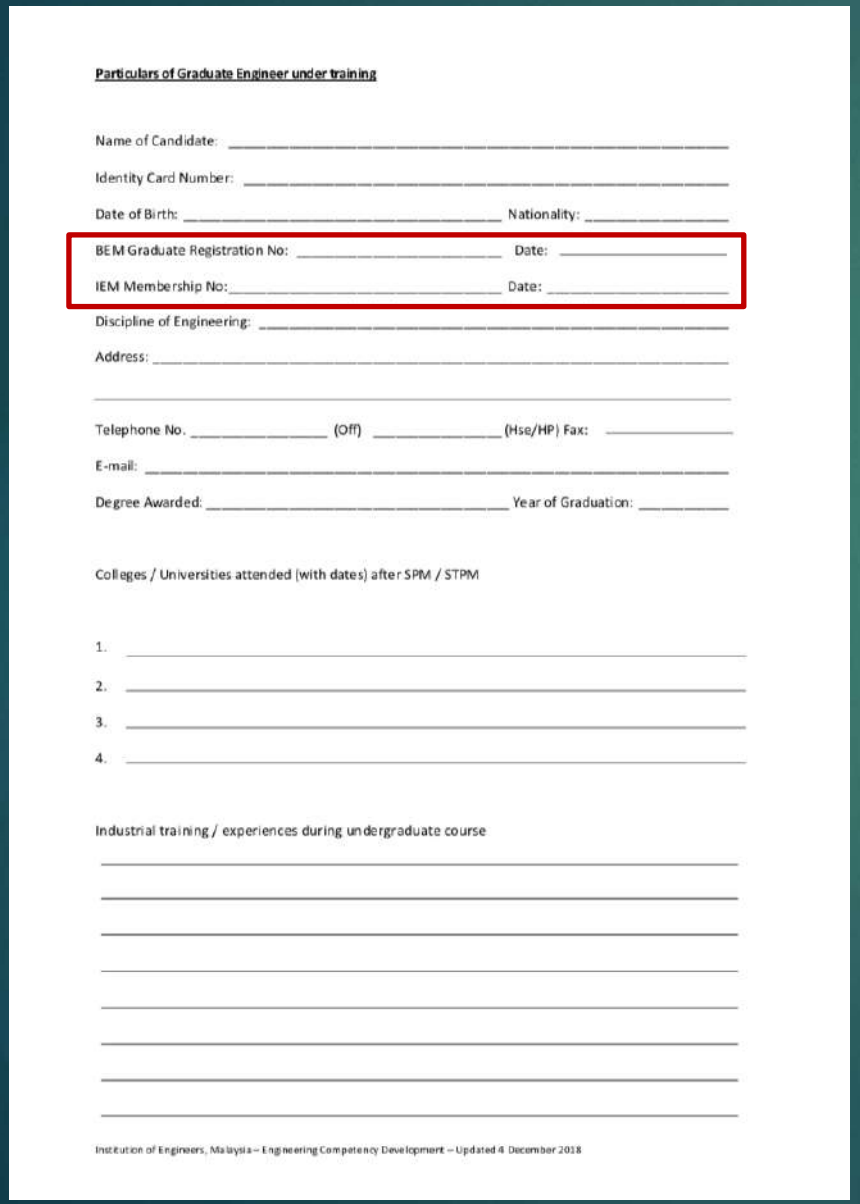
A Closer Look at Section A

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

_____

_____

_____

_____

_____

_____

_____

_____

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

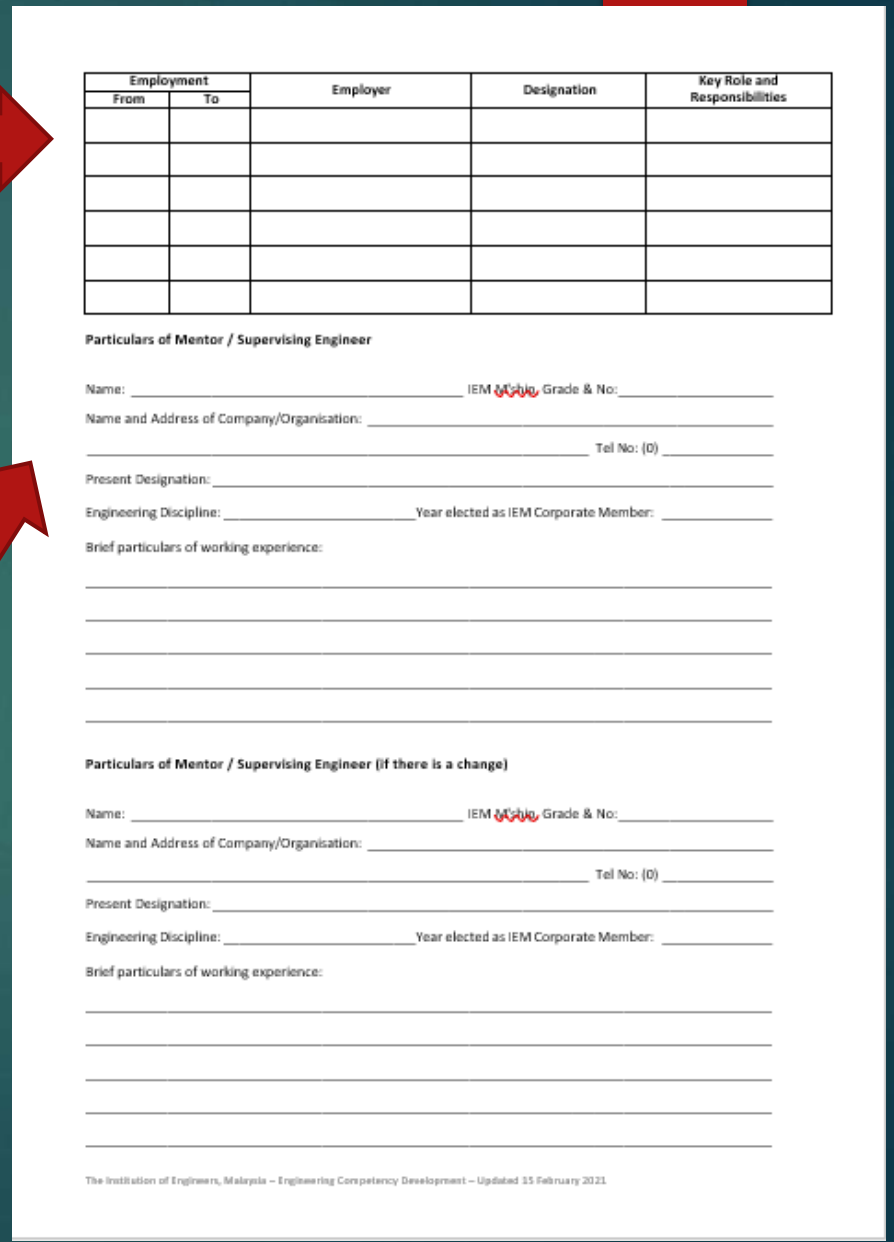
(By Mentee)

- Particulars of Graduate Engineer under Training

Section A: Particulars of Log-Book Scheme

New

Employment		Employer	Designation	Key Role and Responsibilities
From	To			



Employment		Employer	Designation	Key Role and Responsibilities
From	To			

Particulars of Mentor / Supervising Engineer

Name: _____ IEM Ahlio 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 Ahlio 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:

(By Mentee)

- Employment History

(By Mentor)

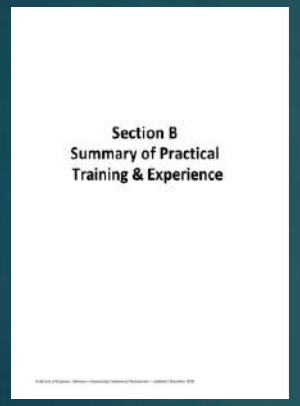
- Particulars of Mentor / Supervising Engineer
- *Particulars of Mentor / Supervising Engineer (if there is a change)*

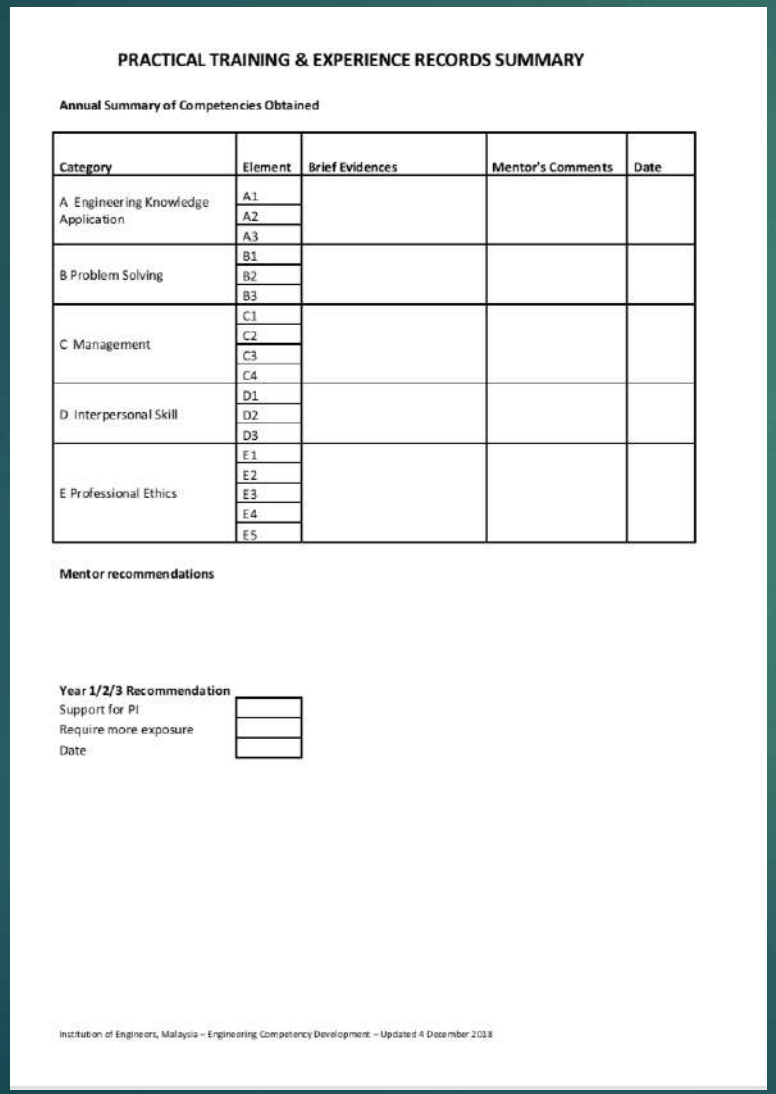
What Is In The Log-Book?

A Closer Look at Section B

What is in Section B?

- Annual Summary of Competencies Obtained
- Quarterly Summary of Competencies Obtained
- Competency Category A-E (Detailed)


Section B
Summary of Practical Training & Experience


PRACTICAL TRAINING & EXPERIENCE RECORDS SUMMARY

Annual Summary of Competencies Obtained

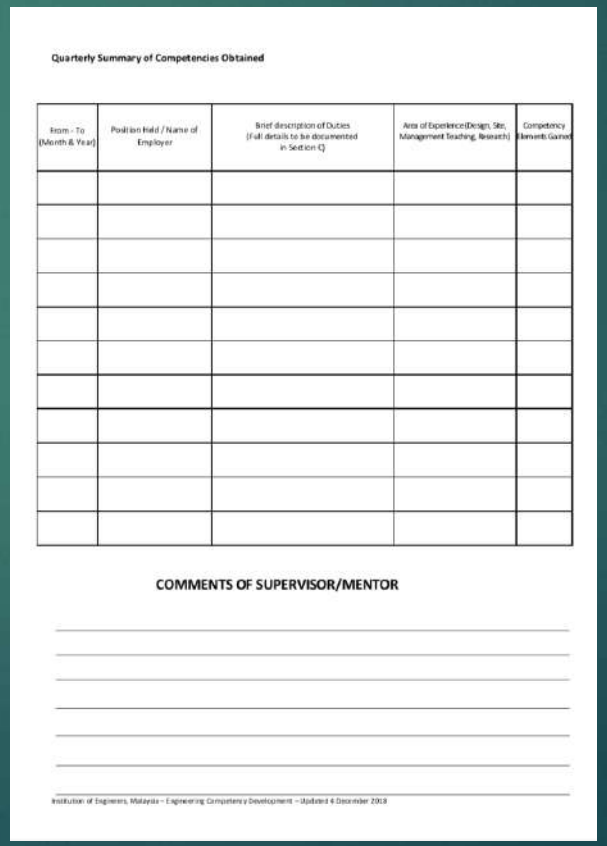
Category	Element	Brief Evidences	Mentor's Comments	Date
A Engineering Knowledge Application	A1			
	A2			
	A3			
B Problem Solving	B1			
	B2			
	B3			
C Management	C1			
	C2			
	C3			
	C4			
D Interpersonal Skill	D1			
	D2			
	D3			
E Professional Ethics	E1			
	E2			
	E3			
	E4			
	E5			

Mentor recommendations

Year 1/2/3 Recommendation

Support for PI	
Require more exposure	
Date	

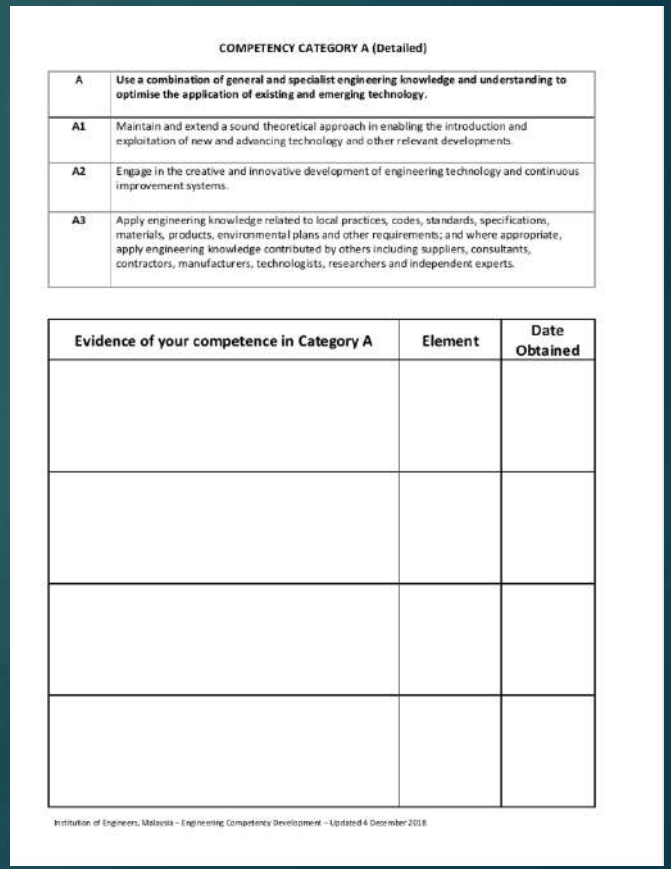
Institution of Engineers, Malaysia – Engineering Competency Development – Updated 4 December 2018


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

COMMENTS OF SUPERVISOR/MENTOR

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

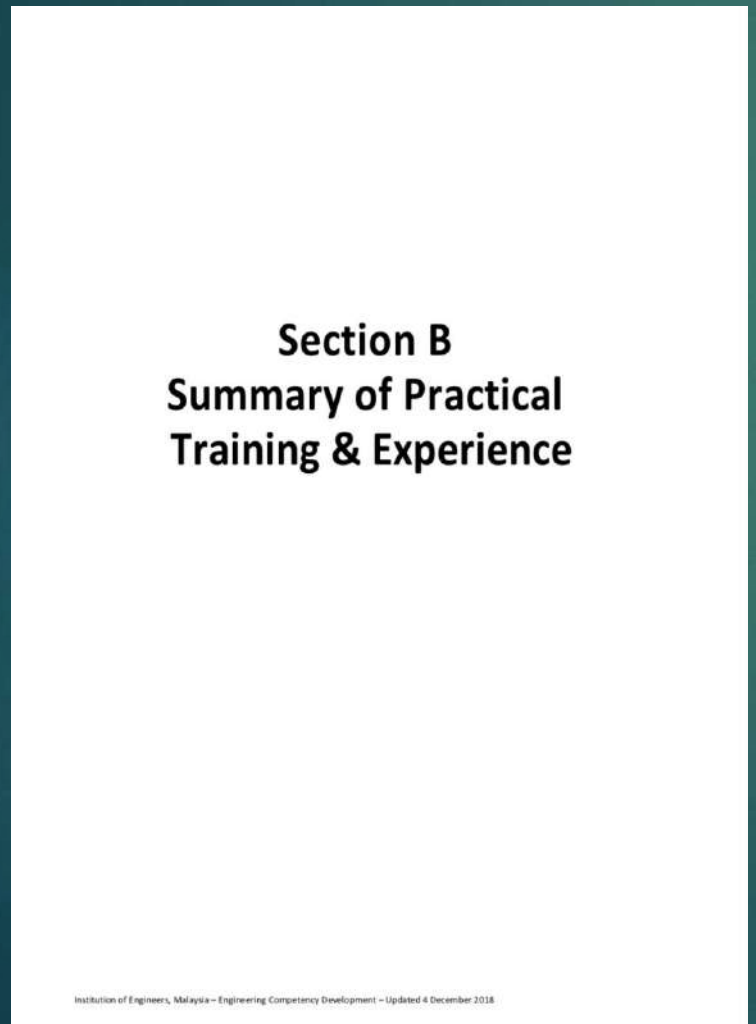

COMPETENCY CATEGORY A (Detailed)

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

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

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
Annual Summary of Competencies Obtained

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

Annual Summary

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*

Section B: Summary of Practical Training & Experience

Annual Summary of Competencies Obtained

A

B

C

D

E

PRACTICAL TRAINING & EXPERIENCE RECORDS SUMMARY

Annual Summary of Competencies Obtained

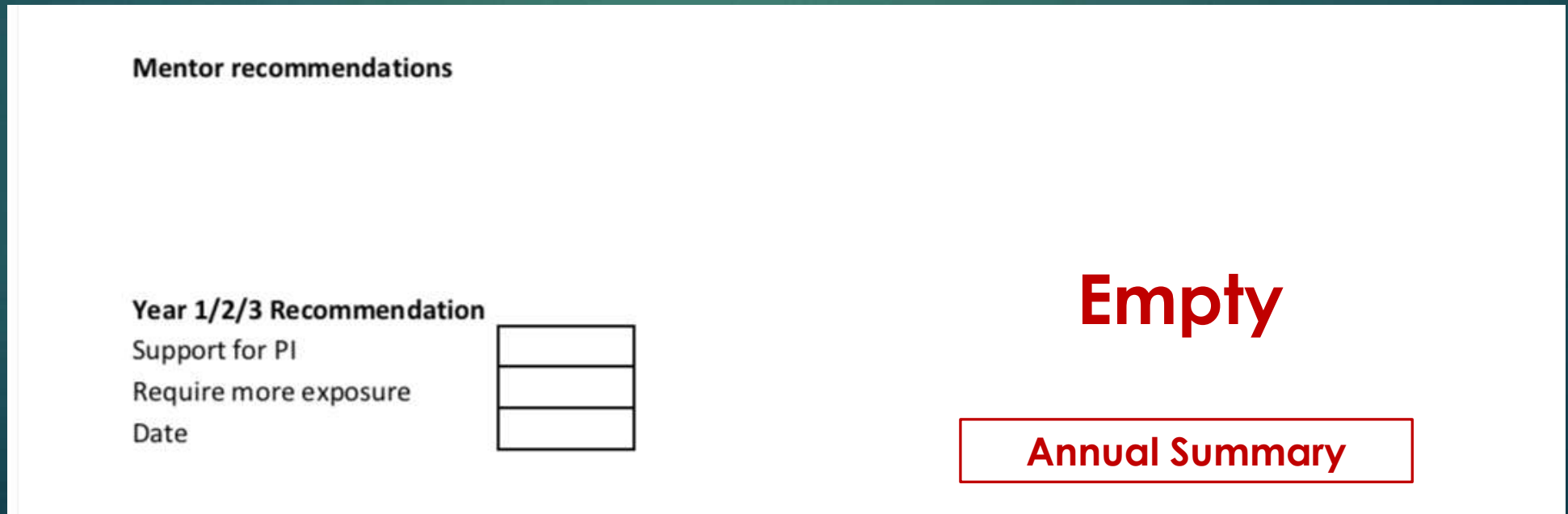
Annual Summary

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			

Section B: Summary of Practical Training & Experience
Annual Summary of Competencies Obtained

Mentor recommendations

Year 1/2/3 Recommendation:
- ***Support for PI***
- ***Require more exposure***
- ***Date***



Section B: Summary of Practical Training & Experience

Annual Summary of Competencies Obtained

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 (.dss database)	It is a good attempt to use the .dss database software to safe time	20/5/2019
	A2 ✓			
	A3 ✓	flowmate specification		
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 mission 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 initial discussion	To learn more about brainstorming exercise and to draw good outcome from the members' participation.	20/5/2019
	D2 ✓	present finding of hydraulic modelling		
	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 (e.g. dam breach)		
	E3 ✓	reduce evacuation value and relate negligence		
	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 term of design requirements, cost of construction and time.

Year 1/2/3 Recommendation

Support for PI	
Require more exposure	✓
Date	20/5/2019

Sample

SAMPLE – CIVIL

Mentee to fill in Brief Evidences, Mentor to comment and add date

Note Mentor's Comments and Recommendations

Section B: Summary of Practical Training & Experience

Annual Summary of Competencies Obtained

PRACTICAL TRAINING & EXPERIENCE RECORDS SUMMARY

Annual Summary of Competencies Obtained

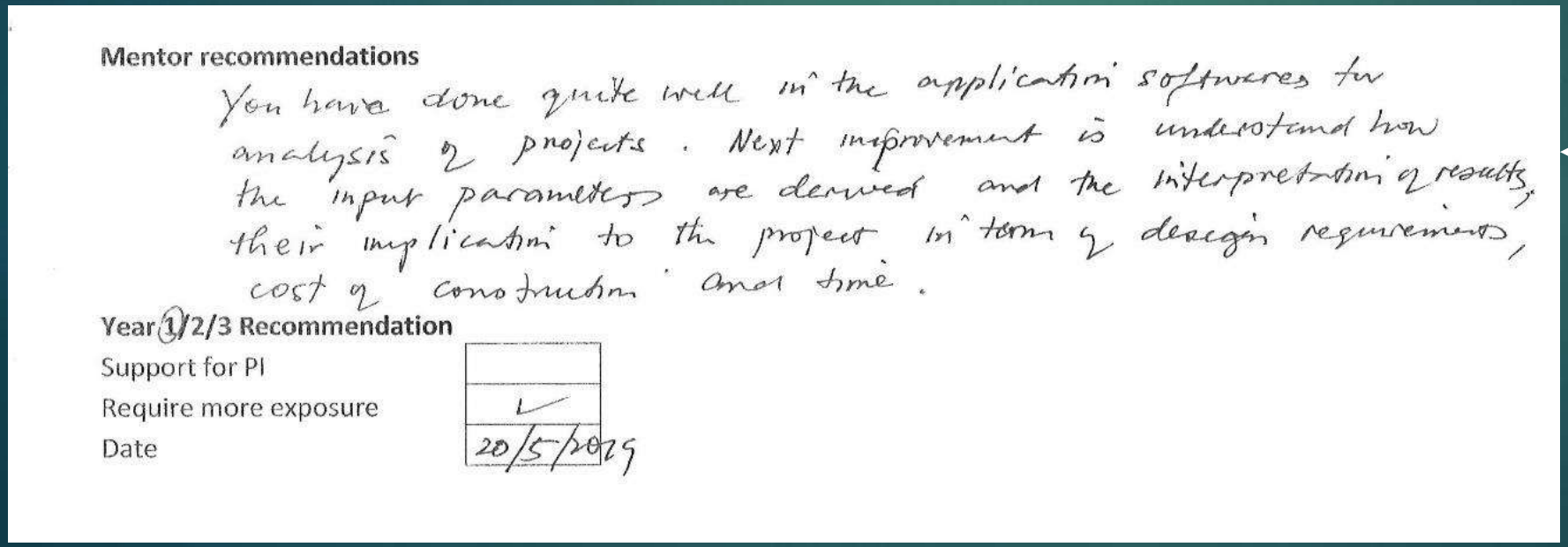
Category	Element	Brief Evidences	Mentor's Comments	Date
A Engineering Knowledge Application	A1 ✓	Integrated hydrology and hydraulic (.dss database)	It is a good attempt to use the .dss database software to safe time	20/5/2019
	A2 ✓			
	A3 ✓	flowmeter specification		
B Problem Solving	B1		Opportunity 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 objective 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 modelling		
	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 breach		
	E3 ✓	reduce excavation volume and reuse aggregate		
	E4 ✓	Attend technical talk		
	E5			

← *Mentee to fill in Brief Evidences, Mentor to comment and add date*

SAMPLE – CIVIL

Section B: Summary of Practical Training & Experience
Annual Summary of Competencies Obtained

SAMPLE – CIVIL



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 term of design requirements, cost of construction and time.

Year 1/2/3 Recommendation

Support for PI	
Require more exposure	✓
Date	20/5/2019

← *Note Mentor's Comments and Recommendations*

Section B: Summary of Practical Training & Experience

Annual Summary of Competencies Obtained

PRACTICAL TRAINING & EXPERIENCE RECORDS SUMMARY

Annual Summary of Competencies Obtained

Category	Element	Brief Evidences	Mentor's Comments	Date
A) Engineering Knowledge Application	A1	- Coordinated services clashes issues on site using Naviswork software. - Modelled services design using Solidworks software. - Involved in HVAC technical training and technical assignments. - Prepared coordination layout drawing using Naviswork software. - Extend knowledge via preparing HVAC functional design specification.	- The graduate engineer has shown satisfactory progress in deepening his knowledge (modelling and simulation) and extending his technical skills through the application of existing technology in the area of HVAC. - He has also shown his ability to use local practices and standards in carrying out his engineering work.	20.07.19
	A2	-Developed the ducting shop drawings from consultant's drawing -Troubleshooted cleanroom high pressurization issue. -Troubleshooted cleanroom temperature and relative humidity issue. -Troubleshooted expansion tank water leakage issue		
	A3	- Installed ductwork advised by consultant referring to SMACNA standard - Performed duct leak test advised by consultant. - Performed fire seal installation work advised by consultant. - Prepared ceiling manhole coordination layout drawing proposed by contractor. - Reported ducting air balancing results advised by NEBB supplier. - Prepared cleanroom performance testing report referring to GMP standard. - Updated cleanroom specification advised by consultant - Updated ductwork as-built drawings advised by consultant. - Investigated HVAC equipment shutdown issue with client and contractor. - Performed AHU drip eliminator installation work advised by suppliers.	Sample	
	B1	- Assisted in new project tendering work. - Prepared quotation for HEPA filter relocation work	- The graduate engineer	

SAMPLE – MECHANICAL

Mentee to fill in Brief Evidences, Mentor to comment and add date

Section B: Summary of Practical Training & Experience
Annual Summary of Competencies Obtained

E) Professional Ethics	E1	- Implemented code of conduct "No Gift Policy" by company management	- To gain more evidence in this competency category	
	E2	- Improved health and safety of control panel installation method		
	E3	- Performed duct leak test to reduce air leakage/ save energy. - Requested for exhaust fan control panel's overload relay replacement.		
	E4			
	E5	- Prepared documents for Extension of Time (EOT) as per PAM contract 2006		

Mentor recommendations

The graduate engineer has shown good progress in attaining the required competencies for registration as a professional engineer. The graduate engineer would require more exposure in order to provide sufficient evidence to be drawn from his engineering work experience especially in the competency category E.

Sample

Year 1/~~2~~/~~3~~ Recommendation

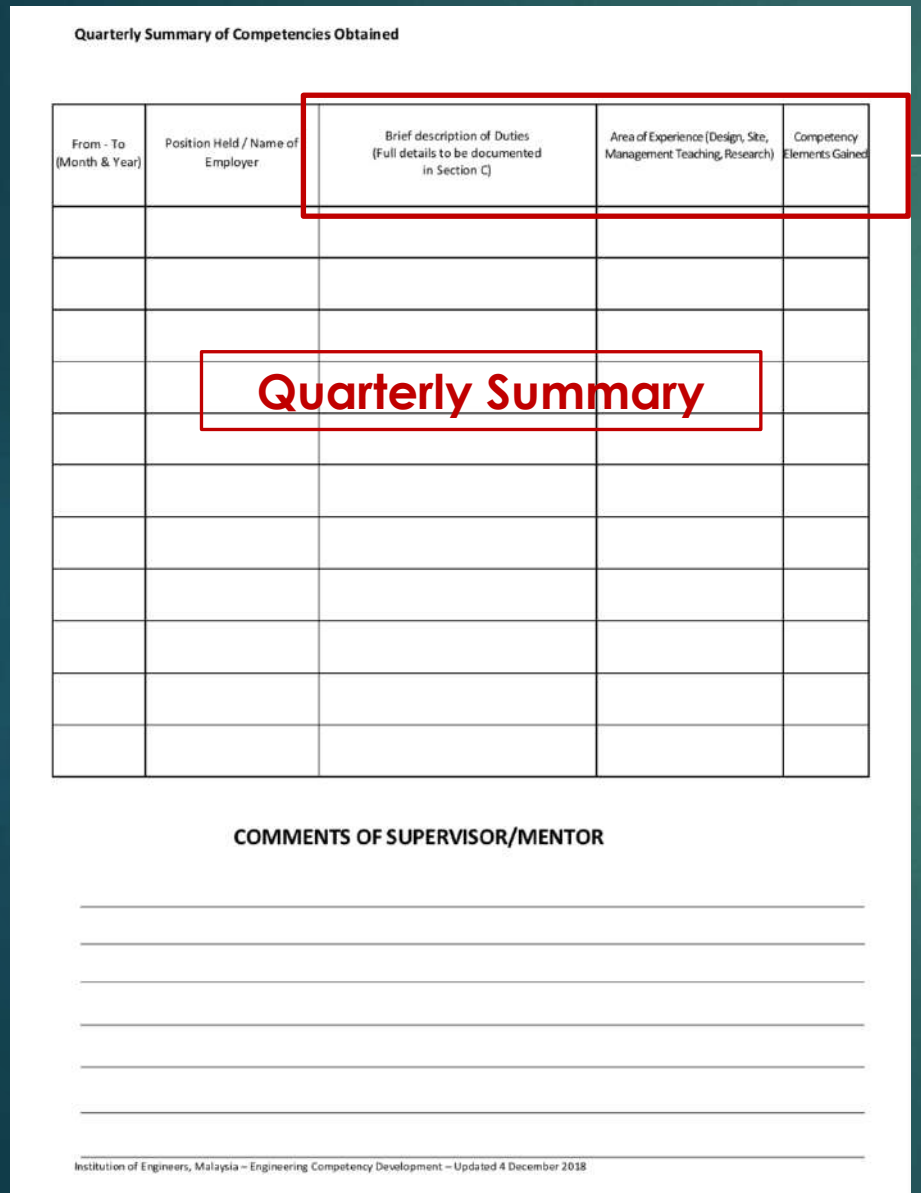
Support for PI	
Require more exposure	√
Date	20.07.19

SAMPLE – MECHANICAL

← *Note Mentor's Comments and Recommendations*

← *Mentor stamped PE chop and sign*

Section B: Summary of Practical Training & Experience
Quarterly Summary of Competencies Obtained



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

Quarterly Summary

COMMENTS OF SUPERVISOR/MENTOR

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

Brief Description of Duties
(Full details to be documented in Section C)

Area of Experience (Design, Site, Management, Teaching, Research etc.)

NEW! Competency Elements Gained

Section B: Summary of Practical Training & Experience

Quarterly Summary of Competencies Obtained

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
April 2018 to Jun 2018	Civil Engineer Angkasa Consulting Services	dam break modelling, flood assessment and hydraulic analysis, slope assessment and floodwater specification	Design, site management	A1, A2, A3, B2, B3, D1, D2, E1, E4
July 2018 to Sept 2018	Civil Engineer Angkasa Consulting Services	1 day training on dam break, review preliminary report, flood assessment and hydraulic analysis, slope protection works and concrete earthworks	Design, site management	B2, B3, D1, D2, E1, E2, E4
Oct 2018 to Dec 2018	Civil Engineer Angkasa Consulting Services	review BOQ, design of proposed treatment, site visit, siting of rock revetment, seepage analysis, slope protection, assess dredging rate, calculate [illegible]	Design, site management	D1, E1, E4
Jan 2019 to Mar 2019	Civil Engineer Angkasa Consulting Services	drainage design, modification works, hydraulic analysis, reservoir yield analysis, attend site visit, hydrology	Design, site management	C1, C2, C3, C4, B4, D1, D3, E1, E4

Quarterly Summary

COMMENTS OF SUPERVISOR/MENTOR

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

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

SAMPLE 1: Can be improved

← Record should be for a 3-month interval

← Comment: Mentor to stamp PE chop and sign

Section B: Summary of Practical Training & Experience
Quarterly Summary of Competencies Obtained

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)	Time Duration (Month)	Competency Elements Gained
March 2018 – May 2018	Project Executive / Sdn. Bhd.	**HVAC Equipment and Ductwork Installation**			
		Coordinated ducting routing clashes issues on site	Site	1.5	A1, D
		Inspected and improved ducting accessories (dampers) mock-up installation work.			C4, D1
		Inspected ducting material upon delivery			D1
		Prepared ducting defect lists			C4
		Inspected ducting accessories (grilles) mock-up installation work			B3, D
		Prepared ducting coordination (wall opening and partition opening) drawings			C1
		Intermediate project inspection with company management team			C4, D1, D3
		Corrected HVAC Equipment (AHU) door installation method			C4
		Simulated airflow in ducting fitting	Design	1	A, B
		Prepared ducting shop drawings			A2, B3
		Simulated stress and displacement on filter housing.			B2
		Prepared documents for Extension of Time (EOT)	Management	0.25	E5
		Involved in technical training assignments	Technical Training	0.25	A1

COMMENTS OF SUPERVISOR/MENTOR

Good exposure in site/field work and in the application of theoretical knowledge in solving problems specifically in the HVAC area. More training/exposure is required in planning and management as well as in competency categories D and E.

Sample

SAMPLE 2: Good

Brief Description of Duties
(Full details to be documented in Section C)

Area of Experience (Design, Site, Management, Teaching, Research etc.)

NEW! Competency Elements Gained

Note:
Mentor stamped PE chop and sign

Section B: Summary of Practical Training & Experience
Quarterly Summary of Competencies Obtained

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)	Time Duration (Month)	Competency Elements Gained
March 2018 – May 2018	Project Executive / T.T.E. Engineering (M) Sdn. Bhd.	**HVAC Equipment and Ductwork Installation**			
		Coordinated ducting routing clashes issues on site	Site	1.5	A1, D
		Inspected and improved ducting accessories (dampers) mock-up installation work.			C4, D1
		Inspected ducting material upon delivery			D1
		Prepared ducting defect lists			C4
		Inspected ducting accessories (grilles) mock-up installation work			B3, D
		Prepared ducting coordination (wall opening and partition opening) drawings			C1
		Intermediate project inspection with company management team			C4, D1, D3
		Corrected HVAC Equipment (AHU) door installation method			C4
		Simulated airflow in ducting fitting	Design	1	A, B
		Prepared ducting shop drawings			A2, B3
		Simulated stress and displacement on filter housing.			B2
		Prepared documents for Extension of Time (EOT)	Management	0.25	E5
		Involved in technical training assignments	Technical Training	0.25	A1

SAMPLE 2: Good

Brief Description of Duties (Full details to be documented in Section C)

Area of Experience (Design, Site, Management, Teaching, Research etc.)

NEW! Competency Elements Gained

Section B: Summary of Practical Training & Experience

Quarterly Summary of Competencies Obtained

COMMENTS OF SUPERVISOR/MENTOR

Good exposure in site/field work and in the application of theoretical knowledge in solving problems specifically in the HVAC area. More training/exposure is required in planning and management as well as in competency categories D and E.

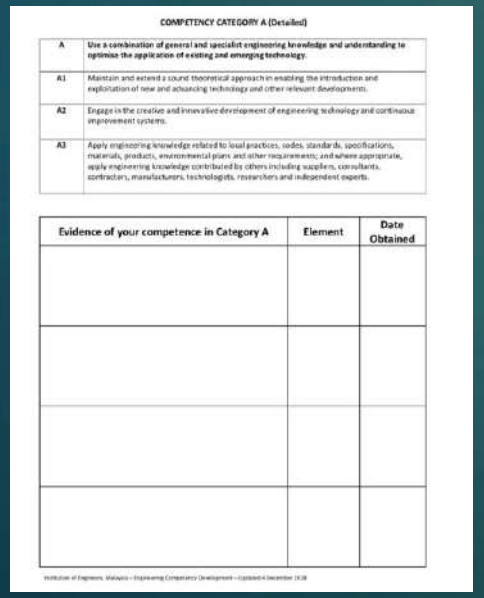
SAMPLE 2: Good

Note:
Mentor stamped PE chop and sign

Section B: Summary of Practical Training & Experience
Competency Category A (Detailed)

A: Engineering Knowledge Application

Mentee to fill



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

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 personal knowledge, understanding and technical skills in own and allied fields of specialisation.
A2	Learn and broaden personal knowledge and experience in the technology, products or services related to own specialisation, preferably with a view to improvement.
A3	Comprehend and apply knowledge and understanding of the relevant engineering codes, standards, specifications, applications, especially those appropriate to local context, requirements, and application.

Evidence of your competence in Category A	Element	Date Obtained

Section B: Summary of Practical Training & Experience
Competency Category A (Detailed)

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

SAMPLE: Category A (Engineering Knowledge Application)

Mentee to fill

Section B: Summary of Practical Training & Experience
Competency Category B (Detailed)

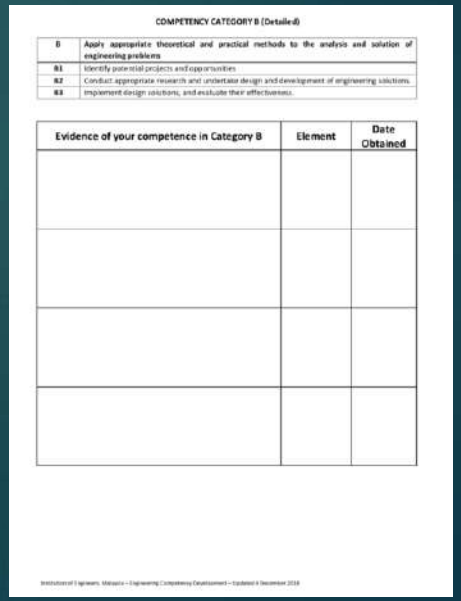
COMPETENCY CATEGORY B (Detailed)

B	**Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.**
B1	Identify projects and/or opportunities/problems.
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



Section B: Summary of Practical Training & Experience

Competency Category B (Detailed)

SAMPLE: Category B (Problem Solving)

Mentee to fill

COMPETENCY CATEGORY B (Detailed)

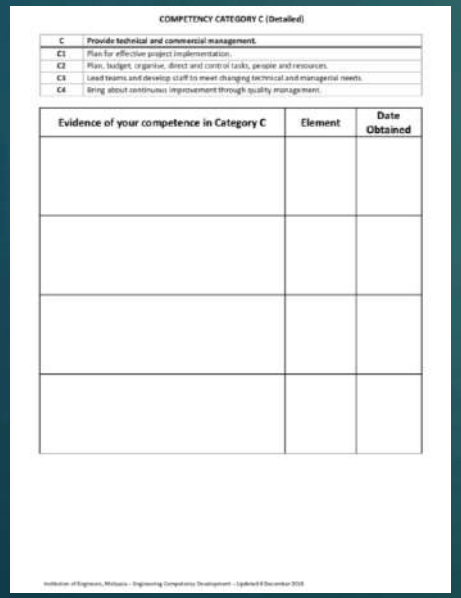
B	**Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems**
B1	Identify potential projects and opportunities
B2	Conduct appropriate research and undertake design and development of engineering solutions.
B3	Implement design solutions, and evaluate their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

Evidence of your competence in Category B	Element	Date Obtained
The slope design for Bukit Sah 3 and Bukit Kolam 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 Kolam 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 Kolam, which includes diversion of some drains and omission of sumps and culvert to reduce the cost of the project.	B3	Feb 2019

Section B: Summary of Practical Training & Experience
Competency Category C (Detailed)

C: Management

Mentee to fill



COMPETENCY CATEGORY C (Detailed)

C	Provide technical and commercial management.
C1	Plan for effective project/job task 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

Section B: Summary of Practical Training & Experience
Competency Category C (Detailed)

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 Mac
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	~~Apr~~ 2019

SAMPLE: Category C (Management)

Mentee to fill

Section B: Summary of Practical Training & Experience
Competency Category D (Detailed)

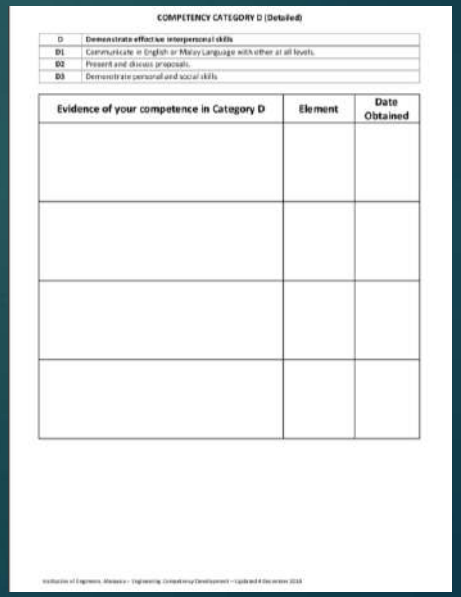
COMPETENCY CATEGORY D (Detailed)

D	**Demonstrate effective interpersonal skills.**
D1	Communicate in National or English 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 Skills

Mentee to fill



Section B: Summary of Practical Training & Experience
Competency Category D (Detailed)

SAMPLE: Category D (Interpersonal Skills)

Mentee to fill

COMPETENCY CATEGORY D (Detailed)

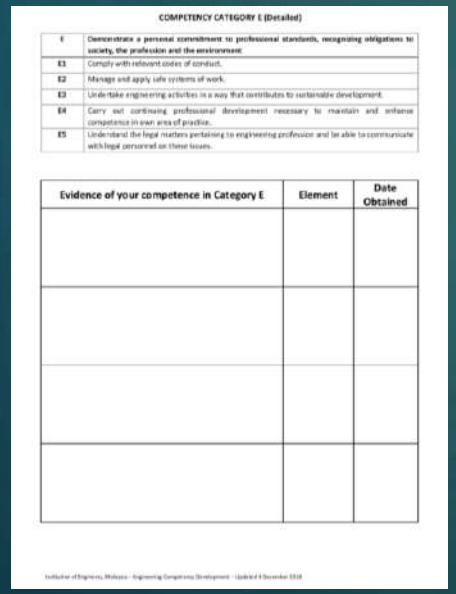
D	**Demonstrate effective interpersonal skills**
D1	Communicate in English or Malay Language with other at all levels.
D2	Present and discuss proposals.
D3	Demonstrate personal and social skills

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

Section B: Summary of Practical Training & Experience
Competency Category E (Detailed)

E: Professional Ethics

Mentee to fill



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 record continuing professional development (CPD) necessary to maintain and enhance competence in own area of practice.
E5	Understand the legal matters pertaining to engineering profession.

Evidence of your competence in Category E	Element	Date Obtained

Section B: Summary of Practical Training & Experience

Competency Category E (Detailed)

COMPETENCY CATEGORY E (Detailed)

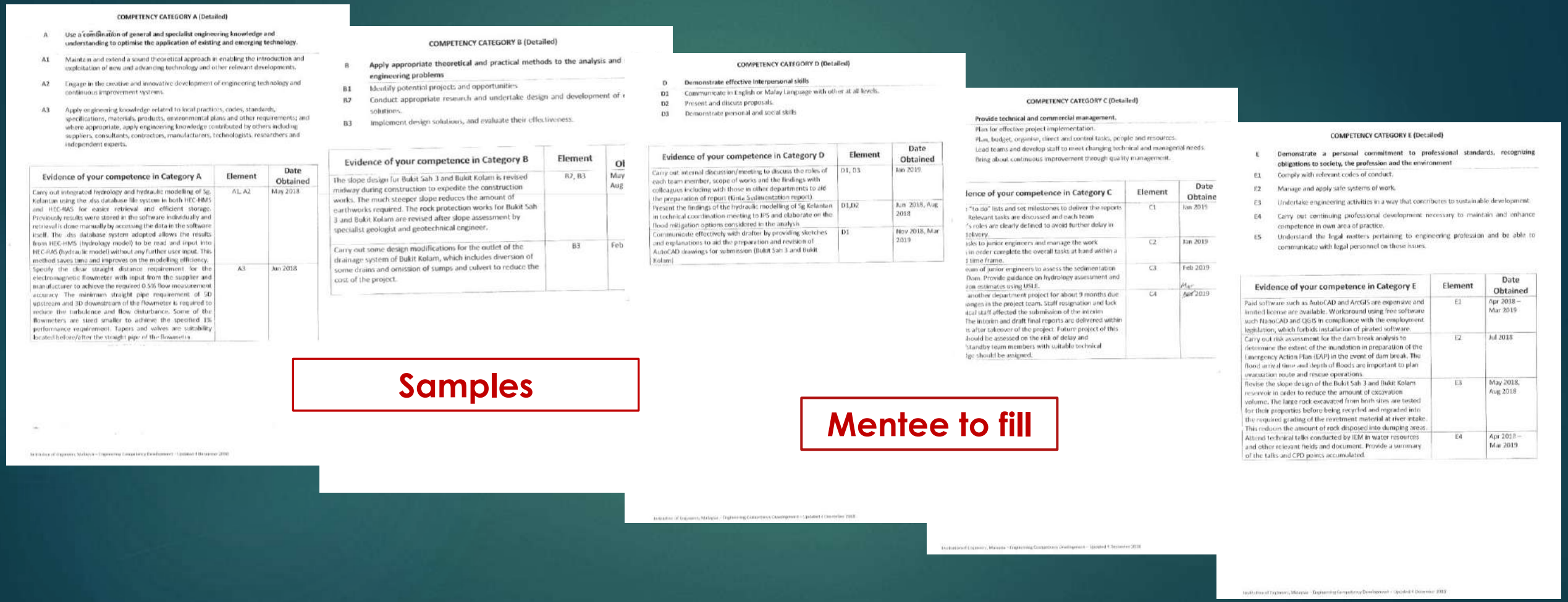
E	**Demonstrate a personal commitment to professional standards, recognizing obligations to society, the profession and the environment**
E1	Comply with relevant codes of conduct.
E2	Manage and apply safe systems of work.
E3	Undertake engineering activities in a way that contributes to sustainable development.
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 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 Kolam 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

SAMPLE: Category E (Professional Ethics)

Mentee to fill

Section B: Summary of Practical Training & Experience
Competency Category A-E (Detailed)



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

COMPETENCY CATEGORY B (Detailed)

B Apply appropriate theoretical and practical methods to the analysis and engineering problems

B1 Identify potential projects and opportunities

B2 Conduct appropriate research and undertake design and development of 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 Kolam 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 Kolam are revised after slope assessment by specialist geologist and geotechnical engineer.	B2, B3	May Aug
Carry out some design modifications for the outlet of the drainage system of Bukit Kolam, which includes diversion of some drains and omission of sumps and culvert to reduce the cost of the project.	B3	Feb

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

COMPETENCY CATEGORY C (Detailed)

Provide technical and commercial management.

Plan for effective project implementation.

Plan, budget, organise, direct and control tasks, people and resources.

Lead teams and develop staff to meet changing technical and managerial needs.

Bring about continuous improvement through quality management.

lence of your competence in Category C	Element	Date Obtaine
"to do" lists and set milestones to deliver the reports Relevant tasks are discussed and each team 's roles are clearly defined to avoid further delay in delivery.	C1	Jan 2019
sks to junior engineers and manage the work in order complete the overall tasks at hand within a time frame.	C2	Jan 2019
eam of junior engineers to assess the sedimentation Dam. Provide guidance on hydrology assessment and ion estimates using USLE.	C3	Feb 2019 Mar
another department project for about 9 months due anges in the project team. Staff resignation and luck ical staff affected the submission of the interim The interim and draft final reports are delivered within s after takeover of the project. Future project of this should be assessed on the risk of delay and standby team members with suitable technical ge should be assigned.	C4	Apr 2019

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 those 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 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 Kolam 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

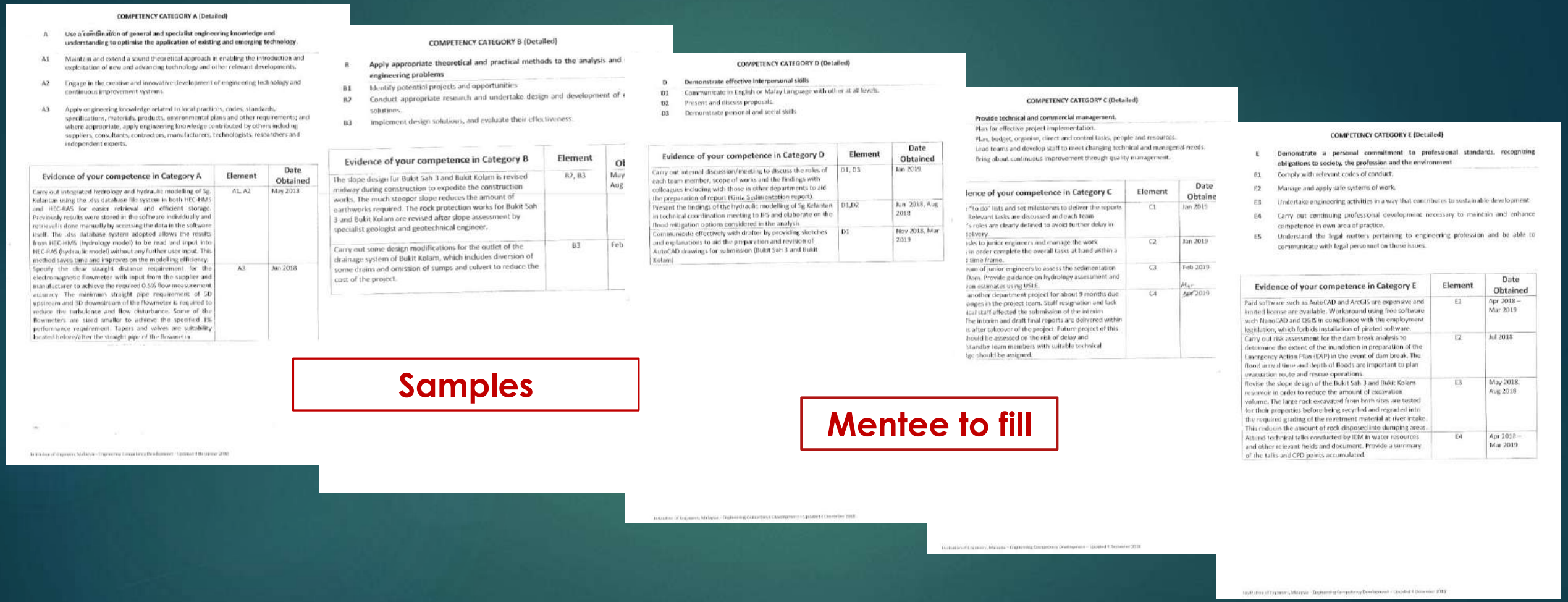
Samples

Mentee to fill

Question: Do we use the same form quarterly, annually or for 3 years?

Section B: Summary of Practical Training & Experience

Competency Category A-E (Detailed)



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

COMPETENCY CATEGORY B (Detailed)

B Apply appropriate theoretical and practical methods to the analysis and engineering problems

B1 Identify potential projects and opportunities

B2 Conduct appropriate research and undertake design and development of 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 Kolam 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 Kolam are revised after slope assessment by specialist geologist and geotechnical engineer.	B2, B3	May Aug
Carry out some design modifications for the outlet of the drainage system of Bukit Kolam, which includes diversion of some drains and omission of sumps and culvert to reduce the cost of the project.	B3	Feb

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 IPS 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

COMPETENCY CATEGORY C (Detailed)

Provide technical and commercial management.

Plan for effective project implementation.

Plan, budget, organise, direct and control tasks, people and resources.

Lead teams and develop staff to meet changing technical and managerial needs.

Bring about continuous improvement through quality management.

lence of your competence in Category C	Element	Date Obtaine
"to do" lists and set milestones to deliver the reports Relevant tasks are discussed and each team 's roles are clearly defined to avoid further delay in delivery.	C1	Jan 2019
ules to junior engineers and manage the work in order complete the overall tasks at hand within a time frame.	C2	Jan 2019
eam of junior engineers to assess the sedimentation Dam. Provide guidance on hydrology assessment and ion estimates using USLE.	C3	Feb 2019
another department project for about 9 months due anges in the project team. Staff resignation and luck ical staff affected the submission of the interim The interim and draft final reports are delivered within s after takeover of the project. Future project of this should be assessed on the risk of delay and standby team members with suitable technical ge should be assigned.	C4	Apr 2019

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 those 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 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 Kolam 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

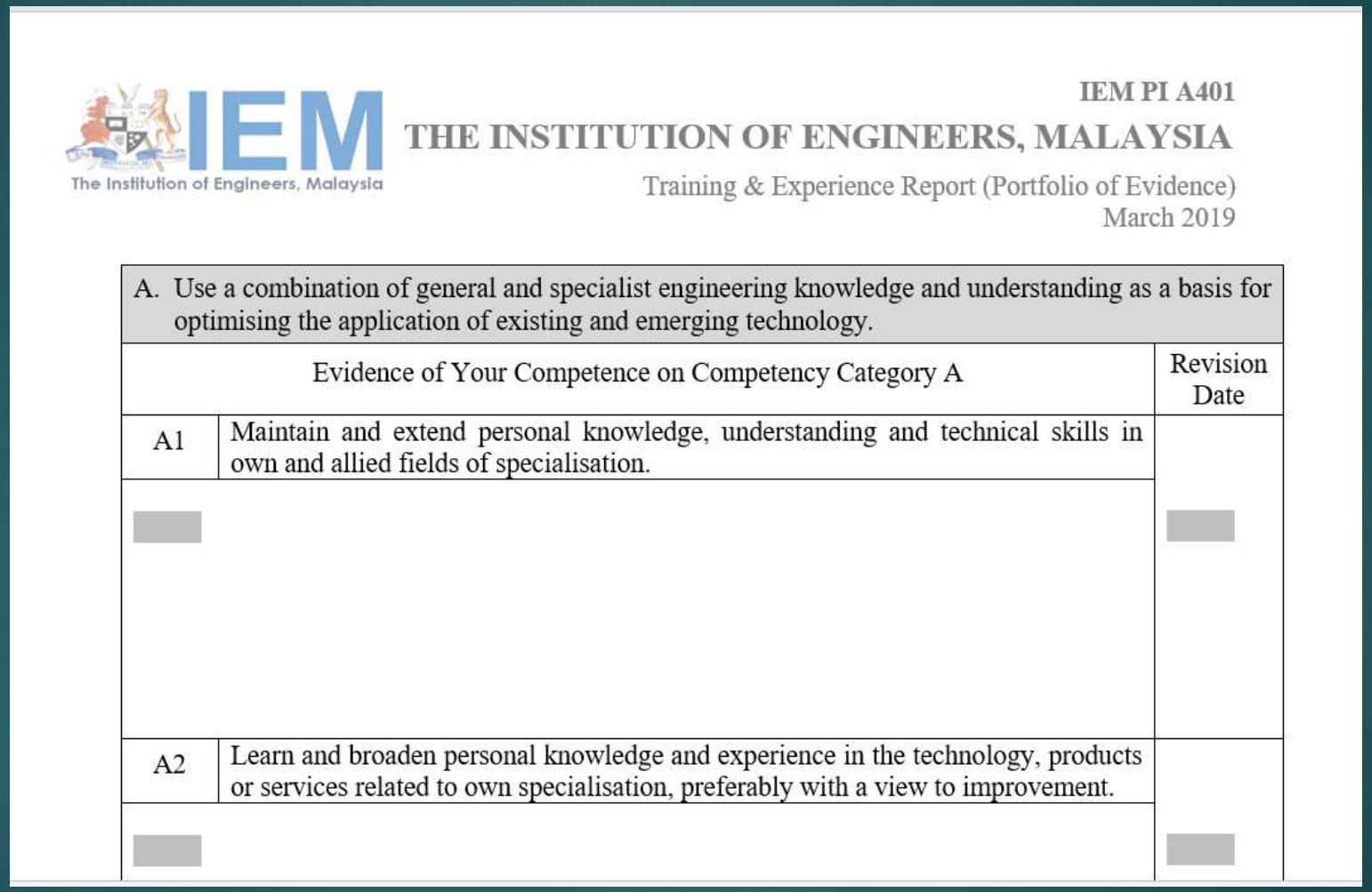
Samples

Mentee to fill

Question: Do we use the same form quarterly, annually or for 3 years?

Suggested answer: Annually (when log-book is submitted to IEM)

Section B: Summary of Practical Training & Experience
Competency Category A-E (Detailed)



IEM PI A401

THE INSTITUTION OF ENGINEERS, MALAYSIA

Training & Experience Report (Portfolio of Evidence)
March 2019

A. Use a combination of general and specialist engineering knowledge and understanding as a basis for optimising the application of existing and emerging technology.		
Evidence of Your Competence on Competency Category A		Revision Date
A1	Maintain and extend personal knowledge, understanding and technical skills in own and allied fields of specialisation.	
A2	Learn and broaden personal knowledge and experience in the technology, products or services related to own specialisation, preferably with a view to improvement.	

IEM PI A401 Training and Experience Report (Portfolio of Evidence)

IEM
The Institution of Engineers, Malaysia
ECD
Engineering Competency Development
A Sub-committee under Admission & Practical Training

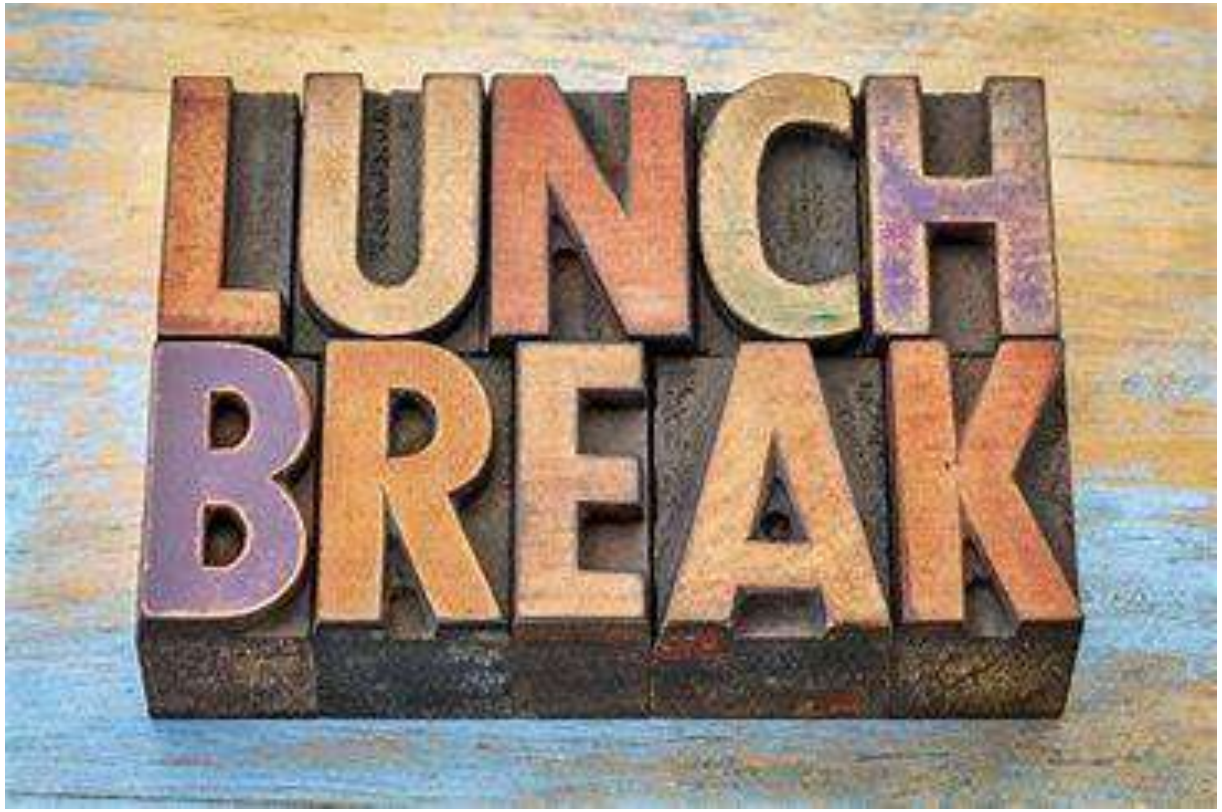
IEM

The Institution of Engineers, Malaysia

ECD

Engineering Competency Development

A Sub-committee under Admission & Practical Training

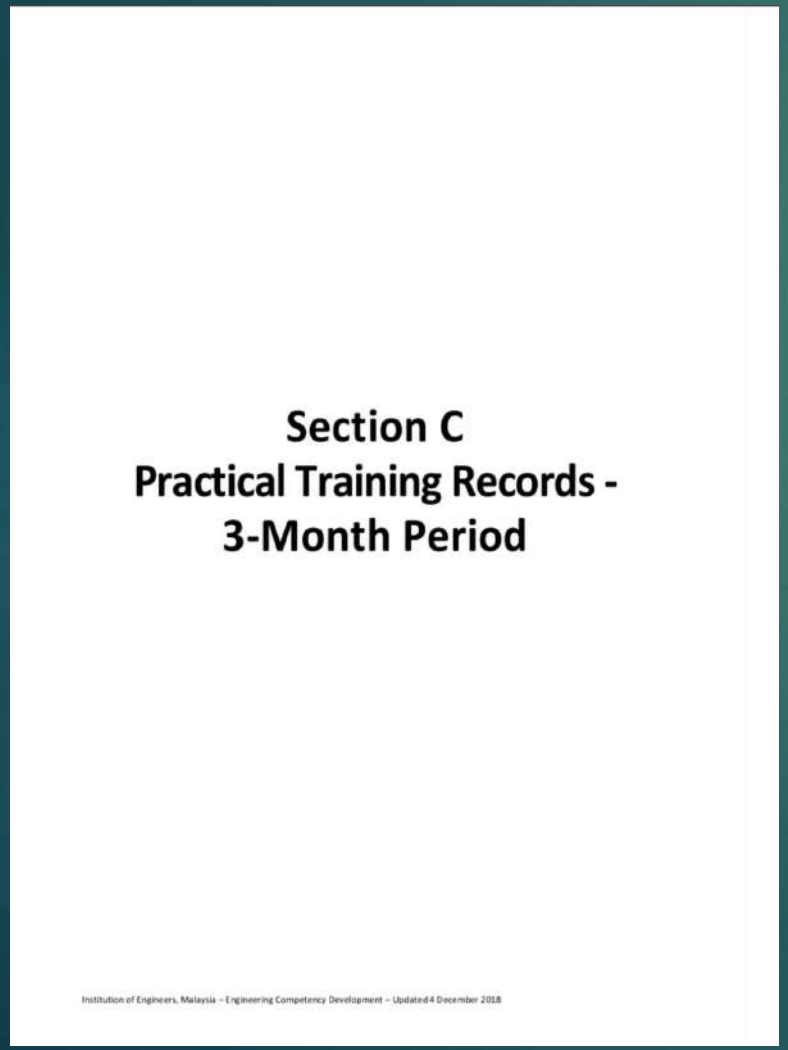


The Logbook (Cont'd)

What Is In The Log-Book?

A Closer Look at Section C

Section C: Practical Training Records (3 Months Period)



- Brief Description of Practical Training Experience
- Details of Project(s) participated
- Types of skills / competencies obtained
- *Attachments of Practical Training Records*

Section C: Practical Training Records

Brief Description of Practical Training Experience

Section C
Practical Training Records - 3-Month Period

Details of Project(s) participated

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:

_____

_____

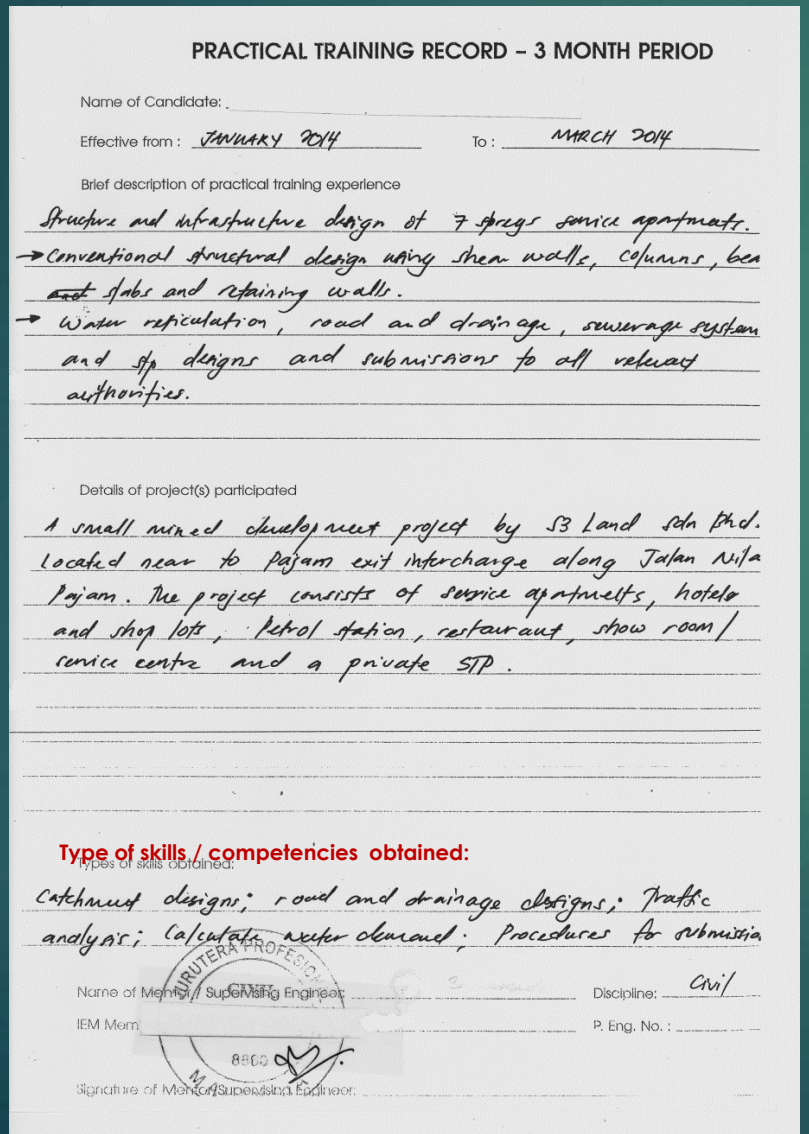
Name of Mentor / Supervising Engineer: _____ Discipline:_____

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

Signature of Mentor/Supervising Engineer: _____

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

Section C: Practical Training Records (3 Months 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 storeys service apartments.
→ Conventional structural design using shear walls, columns, beam ~~and~~ slabs and retaining walls.
→ Water reticulation, road and drainage, sewerage system and SO designs and submissions to all relevant authorities.

Details of project(s) participated

A small mixed development project by S3 Land Sdn Bhd. Located near to Pajam exit interchange along Jalan Nilai Pajam. 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:

Types of skills obtained:

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

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 1

Section C: Practical Training Records (3 Months Period)

PRACTICAL TRAINING RECORD – 3-MONTH PERIOD

Name of Candidate: Tng Choon Siong

Effective from: 01.03.2018 To: 31.05.2018

Brief description of practical training experience

	Brief Work Description	Area of Experience	Time Duration (Month)	Competency Elements Gained
1.	Coordinated ducting routing clashes issues on site	Site	1.5	A1, D
2.	Inspected and improved ducting accessories (dampers) mock-up installation work.			C4, D1
3.	Inspected ducting material upon delivery			D1
4.	Prepared ducting defect lists			C4
5.	Inspected ducting accessories (grilles) mock-up installation work			B3, D
6.	Prepared ducting coordination (wall opening and partition opening) drawings			C1
7.	Intermediate project inspection with company management team			C4, D1, D3
8.	Corrected HVAC Equipment (AHU) door installation method			C4
9.	Simulated airflow in ducting fitting	Design	1	A, B
10.	Prepared ducting shop drawings			A2, B3
11.	Simulated stress and displacement on filter housing.			B2
12.	Prepared documents for Extension of Time (EOT) as per PAM contract 2006	Management	0.25	E5
13.	Involved in technical training assignments	Technical Training	0.25	A1

Details of project(s) participated

1. During building construction time, many contractors with different service packages were doing the installation works together. Sometimes, our ductwork routing installation work clashed with other services even though we comply with the shop drawings approved by the project consultants. Therefore, site coordination with consultant and other contractors were needed to resolve the issues. I had contributed on finding new installation routing by using building 3D visualization software (Naviswork), site checking and compiled it in documents form before proposing and discussed with consultants. So, we minimized the clashing issues on site and increased the work progress to meet the schedule. **(Competency Elements Gained: A1, D)**

2. Control Air Volume (CAV) and Variable Air Volume (VAV) dampers were delivered to site by other contractors. Our task was to install those CAV and VAV to the ducting. In fact, CAV was to control the supply airflow to meet the room air change rate while VAV was to control the return airflow to meet the room pressure. I instructed my contractor to do the dampers mock up installation and invited consultants to inspect the work together. After consultant's inspection, we did the improvement by adding the gasket at the joint between dampers and ducting to prevent air leakage besides insulated the dampers to prevent heat transfer at the damper surface that will cause condensation. **(Competency Elements Gained: C4, D1)**

3. Ducting raw materials (galvanized steel sheet) that were delivered to site were inspected together with consultants before installation. The objective was to ensure the ducting materials meet the specification needs. In fact, ducting size (width x height) below 800mm, the thickness was 0.7mm. Ducting size in between 800mm and 1500mm, the thickness was 1.0mm. Ducting size beyond 1500mm, the thickness was 1.2mm. Duct thickness was to ensure the ducting can sustain the static pressure during operation. **(Competency Elements Gained: D1)**

4. After our contractors had progressively installed the ductwork, we found out some defects that were needed to be rectified to meet the standard work quality. Upon checking on site, I identified defects and highlighted in documents form. The defect list was then used to explain to our contractor for the expectation of the rectification work. Defect lists contained ductwork quality issues and it was updated from time to time whenever the defects were founded. **(Competency Elements Gained: C4)**

5. Before installing all the supply air grille (SAG) and return air grille (RAG) to all cleanrooms, it was requested by consultants to do the mock up installation of SAG and RAG to ensure it meet the specifications. For SAG, we did install the grille at the ceiling frame with sealant applied to all gaps to prevent air leakage and insulation around the grille connection to prevent condensation. The flexible duct was then attached to the SAG transition duct using ducting clip. For RAG, the grille with floor level 300mm was secured to the partition panel by using self-tapping screw. Then, the duct was connected to the partition at the partition ceiling to complete the return air system. As a result of the inspection, consultant and client satisfied with our mock up installation method and I had compiled the inspection in documentation. **(Competency Elements Gained: B3, D)**

6. During the building architecture and structure construction time, some of our ductwork that will penetrate the fire rated walls needed to be coordinated with architecture contractors to smoothen the work flow. In order to achieve that, wall opening

drawings for ductwork was prepared by me and submitted to consultants for approval. In the drawing, duct sizes and duct floor level were indicated to allow the architecture contractors to leave the spaces during their brick wall erection, followed by plastering and wall finishing work. This had minimized the wall opening missed out by the architecture contractors with the aids of wall opening drawings. **(Competency Elements Gained: C1)**

7. In our company own management policy, every main project would have intermediate project inspection to meet the standard work quality. During the inspection on site visit, I recorded down the questions / uncertainties by my management team. Then, I had arranged to close the inspection checklists afterward and submitted the documentation for the record. **(Competency Elements Gained: C4, D1, D3)**

8. Air handling unit (AHU) that had delivered to site was transported to the designated plinth for AHU compartment installation. When I was checking the AHU compartment installation, I found out wrong AHU door position manufactured by factory. This had led to the AHU door cannot be opened due to impracticability. I had highlighted the mistake in the AHU drawings and informed to superior for requesting supplier to rectify. Throughout the AHU checking, I had learnt the AHU installation method and recognized the AHU equipment parts effectively. **(Competency Elements Gained: C4)**

9. Consultants highlighted to us the installed ducting fitting issue which will affect the airflow performances. We needed to modify the ducting fittings to a suitable shape considering the confined installation spaces. I applied the ducting design method using computer aided analysis (Solidworks) and took the initiative to do the research analysis on how to optimize the ducting design performances using SMACNA ducting standard. Objective was to minimize the pressure drop across the duct and increase the duct cross sectional area. Once the duct airflow simulation optimization results obtained, we instructed our contractor to fabricate and installed the new modified ducting fittings to replace the old one. **(Competency Elements Gained: A, B)**

10. We received the consultant "issue for construction (IFC)" ducting drawing for us to prepare our own shop drawing. The ducting drawings contained several air conditioning systems such as Air Handling Unit (AHU) system, Fan Coil Unit (FCU) system, exhaust system, and Outside Air Pre-Cooling (OAPC) system. I did some touch ups and checking to ensure the ducting routing, ducting sizes, ducting floor level were able to install on site. Finally, we submitted the shop drawing to consultants to get the approval before issuing to our contractor to proceed the fabrication and installation work. **(Competency Elements Gained: A2, B3)**

11. Filter housing had encountered several damages at the external body part due to high negative pressure forces in the filter housing compartment. This damage was caused by the shrinkage / inward bending of the filter housing. To prevent this issue happened again, filter housing design was to improve on next installation. Therefore, I was requested by my senior colleague to perform computer aided analysis on the material thickness to determine the suitable thickness that can be used on next housing fabrication. During the analysis, some assumptions were made, and material properties had been chosen for the work simulation. Then, the results had been analyzed for the several thickness before concluding the simulation work. Finally, we deduced that the filter housing with 5mm thickness made of stainless steel had the lower critical deflection. **(Competency Elements Gained: A1, B2)**

12. Our project handover date was approaching very soon as per contract and we noticed the current work progress was unable to meet the schedule. Our current work progress had mainly delayed by the main contractor architecture and structure work. In order to safeguard our company resources, we need to apply for Extension of Time (EOT) to client as per PAM contract 2006 to prevent the charges incurred by Liquidated and Ascertained Damages (LAD). Therefore, I had been assigned to prepare the EOT documents (such as event chronology and impacted work programme schedule) to submit to client. **(Competency Elements Gained: E5)**

13. To increase the technical knowledge and skill sets for a project engineer, my superior had arranged a technical training for us. Technical training was included several topics such as basic of heat transfer, heat source equipment (chiller and cooling tower), heat load, psychrometric chart, and design for duct. During the training, we were given technical problems to discuss and solve. After that, we compiled the technical assignments and submit it together with the training evaluation form to superior. The training had improved my technical knowledge a lot as a project engineer. **(Competency Elements Gained: A1)**

Types of skills/competencies obtained:

Site, Design, Management.

Name of Mentor / Supervising Engineer: Assoc. Prof. Ir. Dr. Hayati Abdullah Discipline: Mechanical

IEM Membership No.: F16513 P Eng. No: C18854

Signature of Mentor/Supervising Engineer:

Sample 2

Section C: Practical Training Records (3 Months Period)

PRACTICAL TRAINING RECORD – 3-MONTH PERIOD

Name of Candidate:

Effective from: 01.03.2018 To: 31.05.2018

Brief description of practical training experience

	Brief Work Description	Area of Experience	Time Duration (Month)	Competency Elements Gained
1.	Coordinated ducting routing clashes issues on site	Site	1.5	A1, D
2.	Inspected and improved ducting accessories (dampers) mock-up installation work.			C4, D1
3.	Inspected ducting material upon delivery			D1
4.	Prepared ducting defect lists			C4
5.	Inspected ducting accessories (grilles) mock-up installation work			B3, D
6.	Prepared ducting coordination (wall opening and partition opening) drawings			C1
7.	Intermediate project inspection with company management team			C4, D1, D3
8.	Corrected HVAC Equipment (AHU) door installation method			C4
9.	Simulated airflow in ducting fitting	Design	1	A, B
10.	Prepared ducting shop drawings			A2, B3
11.	Simulated stress and displacement on filter housing.			B2
12.	Prepared documents for Extension of Time (EOT) as per PAM contract 2006	Management	0.25	E5
13.	Involved in technical training assignments	Technical Training	0.25	A1

Details of project(s) participated

1. During building construction time, many contractors with different service packages were doing the installation works together. Sometimes, our ductwork routing installation work clashed with other services even though we comply with the shop drawings approved by the project consultants. Therefore, site coordination with consultant and other contractors were needed to resolve the issues. I had contributed on finding new installation routing by using building 3D visualization software (Naviswork), site checking and compiled it in documents form before proposing and discussed with consultants. So, we minimized the clashing issues on site and increased the work progress to meet the schedule. **(Competency Elements Gained: A1, D)**

Sample 2

Section C: Practical Training Records (3 Months Period)

11. Filter housing had encountered several damages at the external body part due to high negative pressure forces in the filter housing compartment. This damage was caused by the shrinkage / inward bending of the filter housing. To prevent this issue happened again, filter housing design was to improve on next installation. Therefore, I was requested by my senior colleague to perform computer aided analysis on the material thickness to determine the suitable thickness that can be used on next housing fabrication. During the analysis, some assumptions were made, and material properties had been chosen for the work simulation. Then, the results had been analyzed for the several thickness before concluding the simulation work. Finally, we deduced that the filter housing with 5mm thickness made of stainless steel had the lower critical deflection. **(Competency Elements Gained: A1, B2)**

12. Our project handover date was approaching very soon as per contract and we noticed the current work progress was unable to meet the schedule. Our current work progress had mainly delayed by the main contractor architecture and structure work. In order to safeguard our company resources, we need to apply for Extension of Time (EOT) to client as per PAM contract 2006 to prevent the charges incurred by Liquidated and Ascertained Damages (LAD). Therefore, I had been assigned to prepare the EOT documents (such as event chronology and impacted work programme schedule) to submit to client. **(Competency Elements Gained: E5)**

13. To increase the technical knowledge and skill sets for a project engineer, my superior had arranged a technical training for us. Technical training was included several topics such as basic of heat transfer, heat source equipment (chiller and cooling tower), heat load, psychrometric chart, and design for duct. During the training, we were given technical problems to discuss and solve. After that, we compiled the technical assignments and submit it together with the training evaluation form to superior. The training had improved my technical knowledge a lot as a project engineer. **(Competency Elements Gained: A1)**

Types of skills/competencies obtained: ← **Already shown in table above**

Site, Design, Management.

Name of Mentor / Supervising Engineer: Discipline: Mechanical

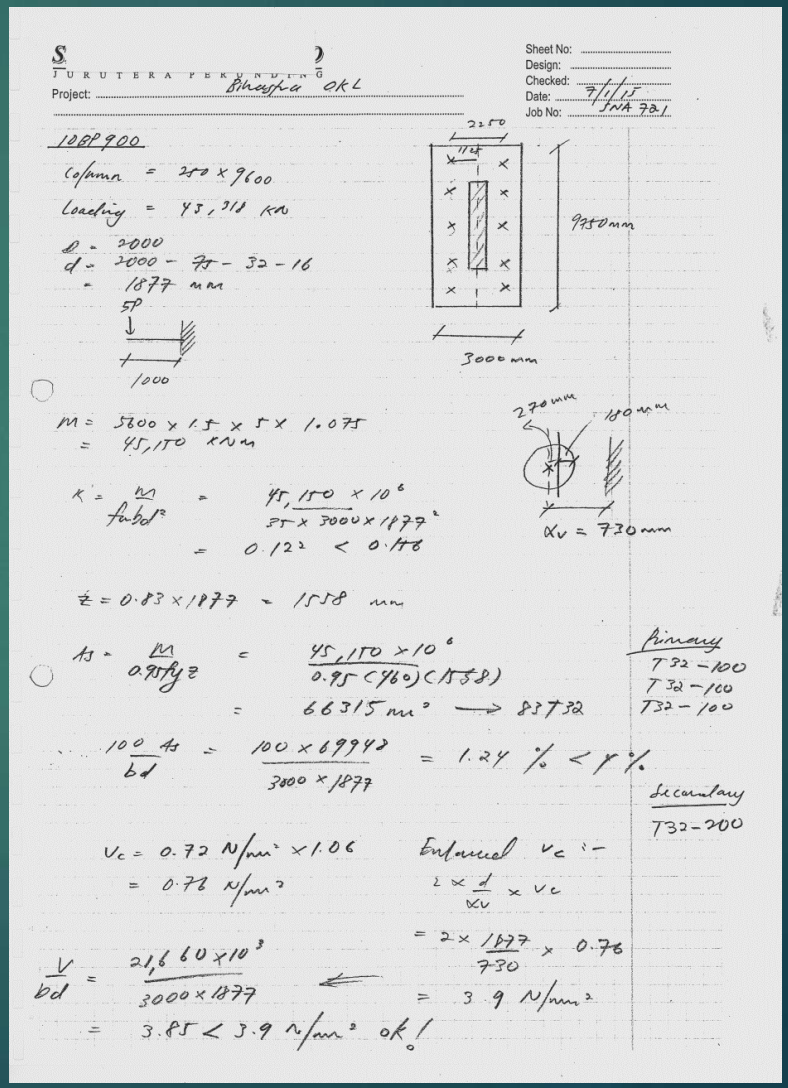
IEM Membership No.: P Eng. No:

Signature of Mentor/Supervising Engineer: _

Sample 2

Section C: Practical Training Records (3 Months Period)

Project :		S3 Land Lot 1345									
		DISHARGE									REMARKS
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(21)	(22)	(23)	(24)	
[redacted]	[redacted]	Catchment Area (A)	[redacted]	[redacted]	[redacted]	Discharge Q = CIA/360	[redacted]	Drain Depth	Sump Depth	[redacted]	Remark
	(m2)	(Hectares)		(Yrs.)	(mm/hr)	(m3/s)	(m)	(m)	(m)	(m)	
	-	-		-	-	-		0.60		-	
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
	-	-		-	-	-		0.60		-	
1-2a	8934	0.893	0.9	10	196.67	0.44	0.45	0.98	0.98		ok
	-	-		-	-	-					
SD	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

What Is In The Log-Book?

A Closer Look at Section D

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				
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11				
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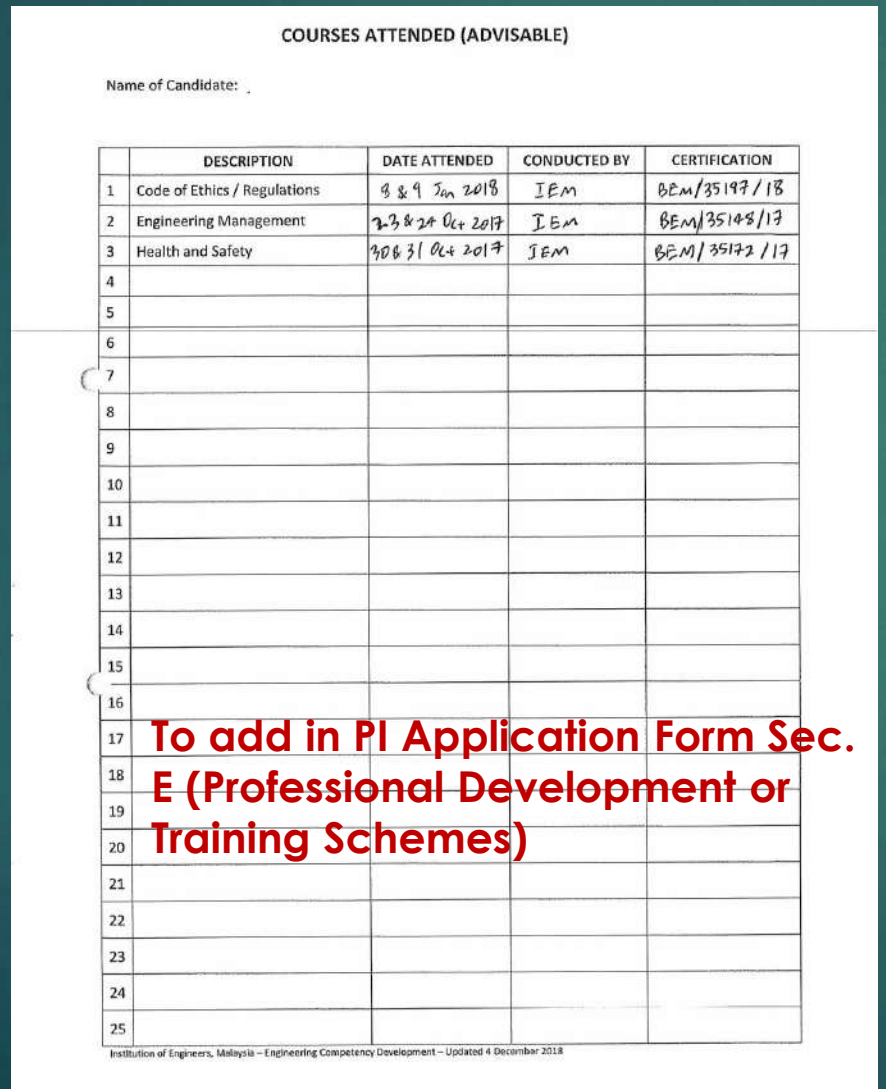
Section D: Courses Attended (Advisable)



COURSES ATTENDED (ADVISABLE)

Name of Candidate:

	DESCRIPTION	DATE ATTENDED	CONDUCTED BY	CERTIFICATION
1	Code of Ethics / Regulations	8 & 9 Jan 2018	IEM	BEM/35197/18
2	Engineering Management	23 & 24 Oct 2017	IEM	BEM/35148/17
3	Health and Safety	30 & 31 Oct 2017	IEM	BEM/35172/17
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Institution of Engineers, Malaysia – Engineering Competency Development – Updated 4 December 2018

To add in PI Application Form Sec. E (Professional Development or Training Schemes)

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:

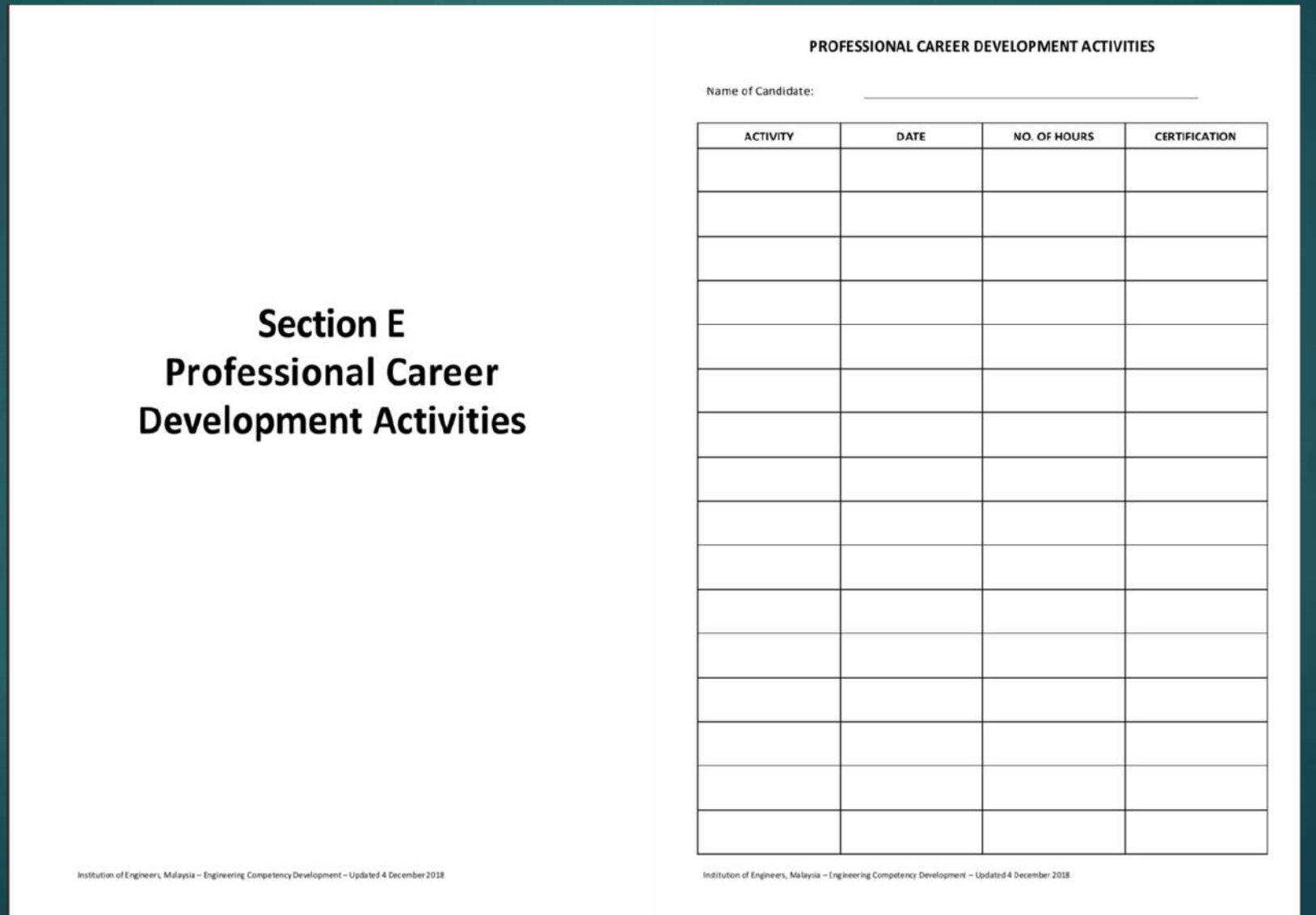
1. Code of Ethics
2. Engineering Management Practice
3. Occupational Health & Safety at Work, Relevant By-Laws & Regulations
4. Topics related to branch of Engineering (same discipline with Mentee)

Sample

What Is In The Log-Book?

A Closer Look at Section E

Section E: Professional Career Development Activities



Section E
Professional Career Development Activities

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

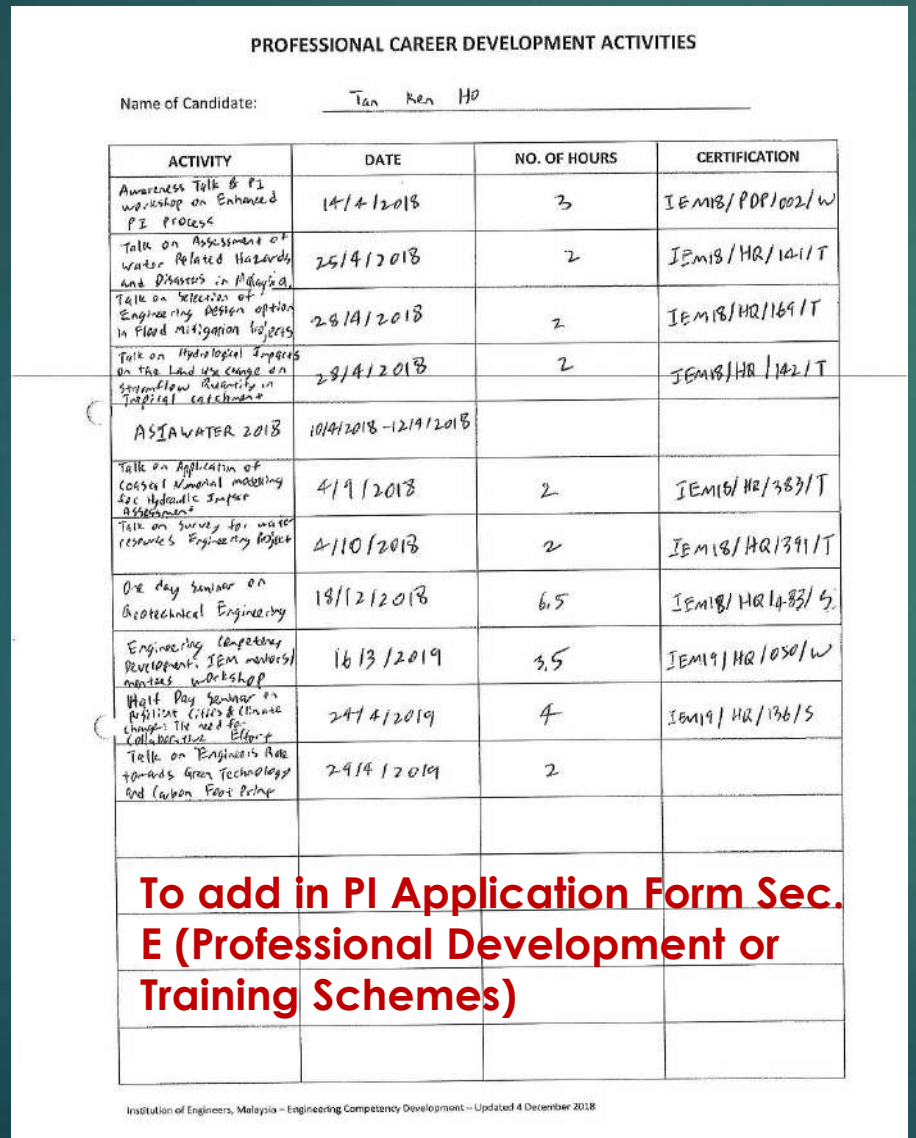
PROFESSIONAL CAREER DEVELOPMENT ACTIVITIES

Name of Candidate: _____

ACTIVITY	DATE	NO. OF HOURS	CERTIFICATION

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

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/HQ/1241/T
Talk on Selection of Engineering Design option in Flood Mitigation Projects	28/4/2018	2	IEM18/HQ/1691/T
Talk on Hydrological Impacts on the Land use change on Streamflow Quantity in Tropical catchment	28/4/2018	2	IEM18/HQ/1421/T
ASIAWATER 2018	10/9/2018 - 12/9/2018		
Talk on Application of Coastal Numerical modelling for Hydraulic Impact Assessment	4/9/2018	2	IEM18/HQ/3831/T
Talk on Survey for water resources Engineering Project	4/10/2018	2	IEM18/HQ/3911/T
One day Seminar on Geotechnical Engineering	18/12/2018	6.5	IEM18/HQ/4831/S
Engineering Competency Development, IEM materials workshop	16/3/2019	3.5	IEM19/HQ/0501/W
Half Day Seminar on Resilient Cities & Climate change: The need for Collaborative Effort	24/4/2019	4	IEM19/HQ/1361/S
Talk on Engineers Role towards Green Technology and Carbon Foot Print	29/4/2019	2	
To add in PI Application Form Sec. E (Professional Development or Training Schemes)			

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

Professional Career Development Activities (Optional):

Technical attendance at

- ✓ **Evening talks**
- ✓ **Visits**
- ✓ **Seminars**

Candidates can attend activities not under their discipline

Sample

Section D: Courses Attended
Section E: Professional Career Development Activities

E Professional Development or Training Schemes (if applicable)

Training Period	Training Description / Training Institution	Competencies Gained	Accreditation number

To add here Sec. D and E records here

IEM PI A100 - Application Form

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.

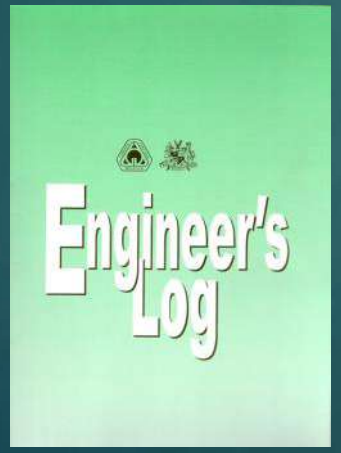
BEM, IEM and other accredited training providers may still provide the relevant courses for the Graduate Engineers. The Board also advises the applicants to keep a record of the trainings attended to facilitate the Professional Engineer application process.

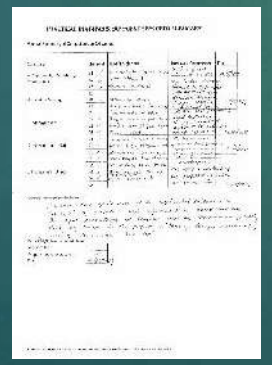
Log-Book Tips

Log-Book Tips

1. The Log-Book submitted by the Mentee should include the following:

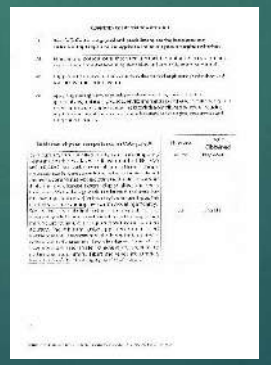
- ✓ Brief description of jobs or tasks performed by the Mentee.
- ✓ Sketches or simple diagram may be used.
- ✓ Detail investigations, studies and calculations could be submitted as attachments to the Log-Book.



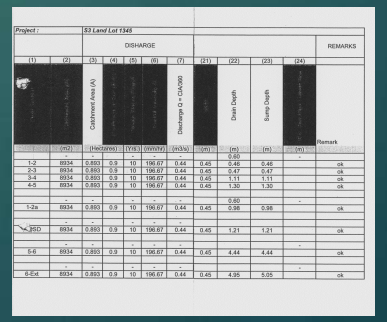


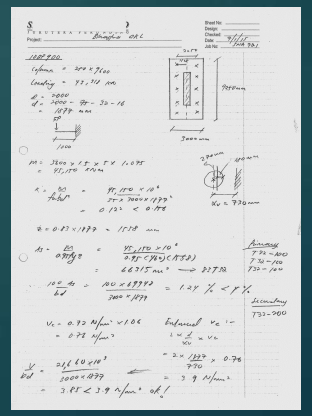
Annual

Quarterly
(Sec B)



Detailed





Attachments (Sec C)

Log-Book Tips

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
   - ✓ Insufficient design experience: Can apply for IEM Structured Training

2. Irrelevant engineering experiences such as
   - ✓ Mechanical graduate engineer submits civil engineering work experiences
   - ✓ Electronic / biomedical graduate engineer submit electrical engineering work experiences

3. Insufficient details – one-page submission, picture report

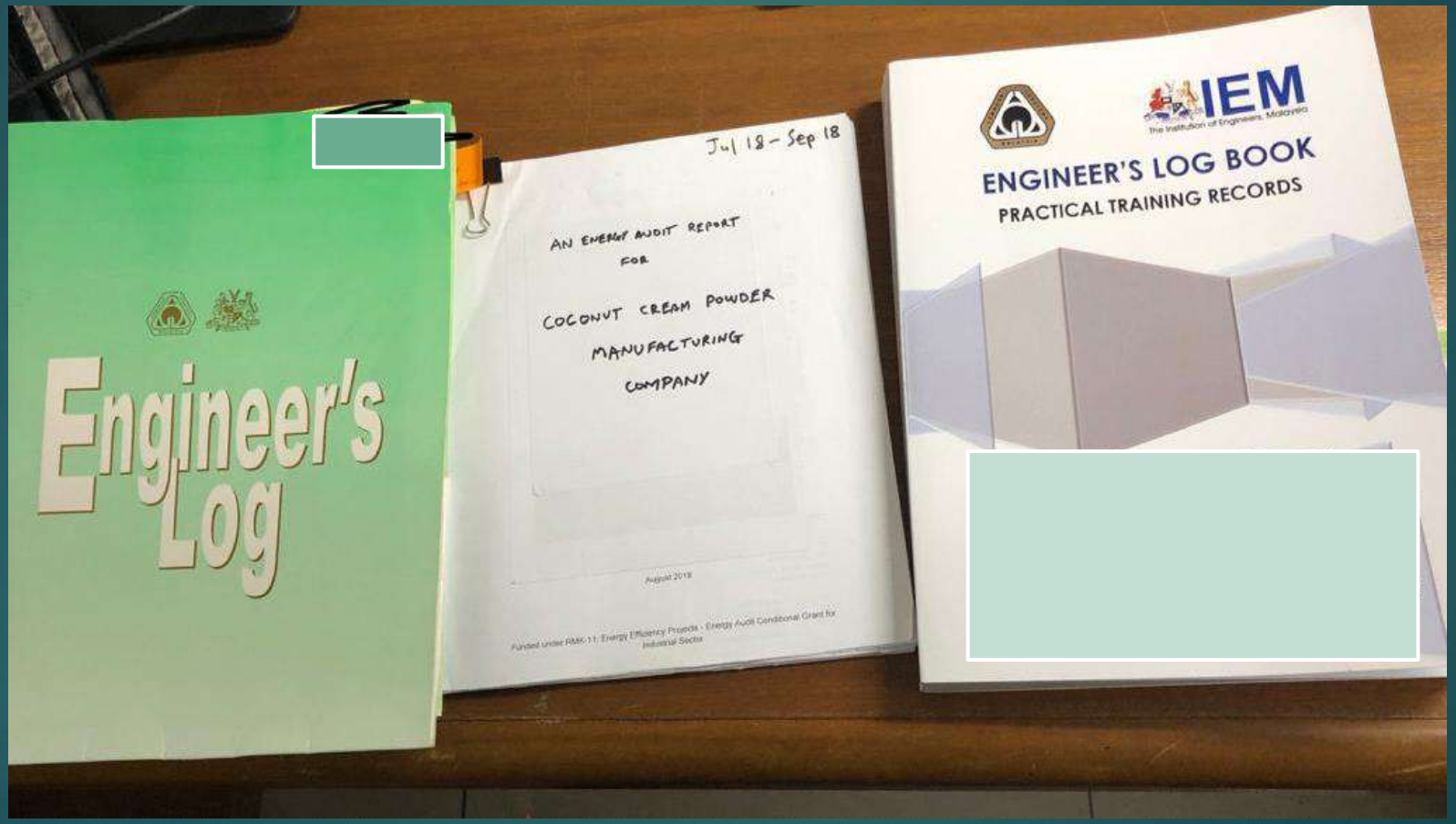
Common Mistakes

4. 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)

5. Irrelevant details – MOM, etc. Log Book submission is not a record of construction progress but focused on experience and competencies gained

6. Submission of confidential document / information without employer's endorsement

Log-Book Submission



Annual Reports: Normal, Simple and Detailed

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

The Professional Interview

IEM Professional Interview

March 2019

IEM
The Institution of Engineers, Malaysia

THE INSTITUTION OF ENGINEERS, MALAYSIA

Bangunan Ingenieur, Lots 60 & 62, Jalan 52/4, P.O. Box 223, Jalan Sultan, 46720 Petaling Jaya
Tel: 03-79684001/4002 Fax: 03-79577678 E-mail: sec@iem.org.my

IEM

Professional Interview Guidelines

for Applicants and Candidates

myiem.org.my/content/professional_interview_pi_-801.aspx

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https://www.myiem.org.my/content/professional_interview_pi_-801.aspx

The Institution of Engineers, Malaysia

Home | Technical Division | Directory | Membership | International | Publicati

Professional Interview (PI)

Home / Membership / Application / Member / Professional Interview (PI)

Description

Requirements

- A candidate for election into this grade shall produce evidence to the satisfaction of the Council that he is worthy of election and
- That he has a graduate qualification as approved by the Council and
- Is a Graduate Engineer for a minimum period of three years
- Preferably the candidate must be working under the guidance of a Professional Engineer for a minimum of three years

Professional Interview (Outcome Based Competence Assessment)

In 2014, IEM embarked on enhancing the existing Professional Interview (PI) Process and Practice as part of periodic review to improve quality. The objectives include:

- Establishing a competency-based Professional Interview by benchmarking a well-established outcome-based competence standard.
- Developing rubrics with common yardsticks for rating PI Candidate in order to minimize subjectivity of assessment in both the oral interview and the written papers.
- Revising current PI process with related documentation to support the above-mentioned.

In benchmarking an outcome-based competence standard, IEM has opted to adopt and adapt:

- The United Kingdom Standard for Professional Engineering Competence (UK-SPEC) for Chartered Engineers mainly for the oral interview.
- The Institution of Engineering and Technology (IET) Model which is more generic and readily applicable to almost all engineering disciplines since IEM is the Institution that caters for all engineering disciplines.

The enhanced version retains the main structure of existing PI Process in that it consists of two essential parts:

- the documentary review and
- professional interview which is made up of oral interview and essay writing.

The Enhanced Professional Interview Process will undergo periodic review and changes in the continuous effort to enhance its quality and keep up with the most up-to-date development in professional engineering competence assessment.

Procedure

- Submit the following forms in duplicate:
  - **IEM PI A100** (Professional Interview Application Form)
  - **IEM PI A300** (MIEM Application Form)
  - **IEM PI A401** (ANNEXE -Design & Site Experience)
  - **IEM PI A401** (Training and Experience -Portfolio of Evidence)
  - **IEM PI C300** (Development Action Plan)
  - **Technical Report**
- Submit supporting documents:
  - BEM Registration Letter/Certificate as a Graduate Engineer (for new applicant)
  - Degree certificates and academic transcripts
    (Certificates from overseas universities issued in foreign languages must be accompanied by translation from University Registrar/Embassy Officials)
- Name will be circulated in IEM Bulletin for a month upon approval of application
- PI Application Fee
  - Processing Fee: RM 100.00
  - **and**
  - PI Fee for Graduate Member: RM 200.00
  - PI Fee for Non-Graduate Member: RM 300.00

Click to Download :

- **PI Guidelines and PI Application Forms**
- **IEM PI C400 - Appeal Form on the PI Outcome Based**

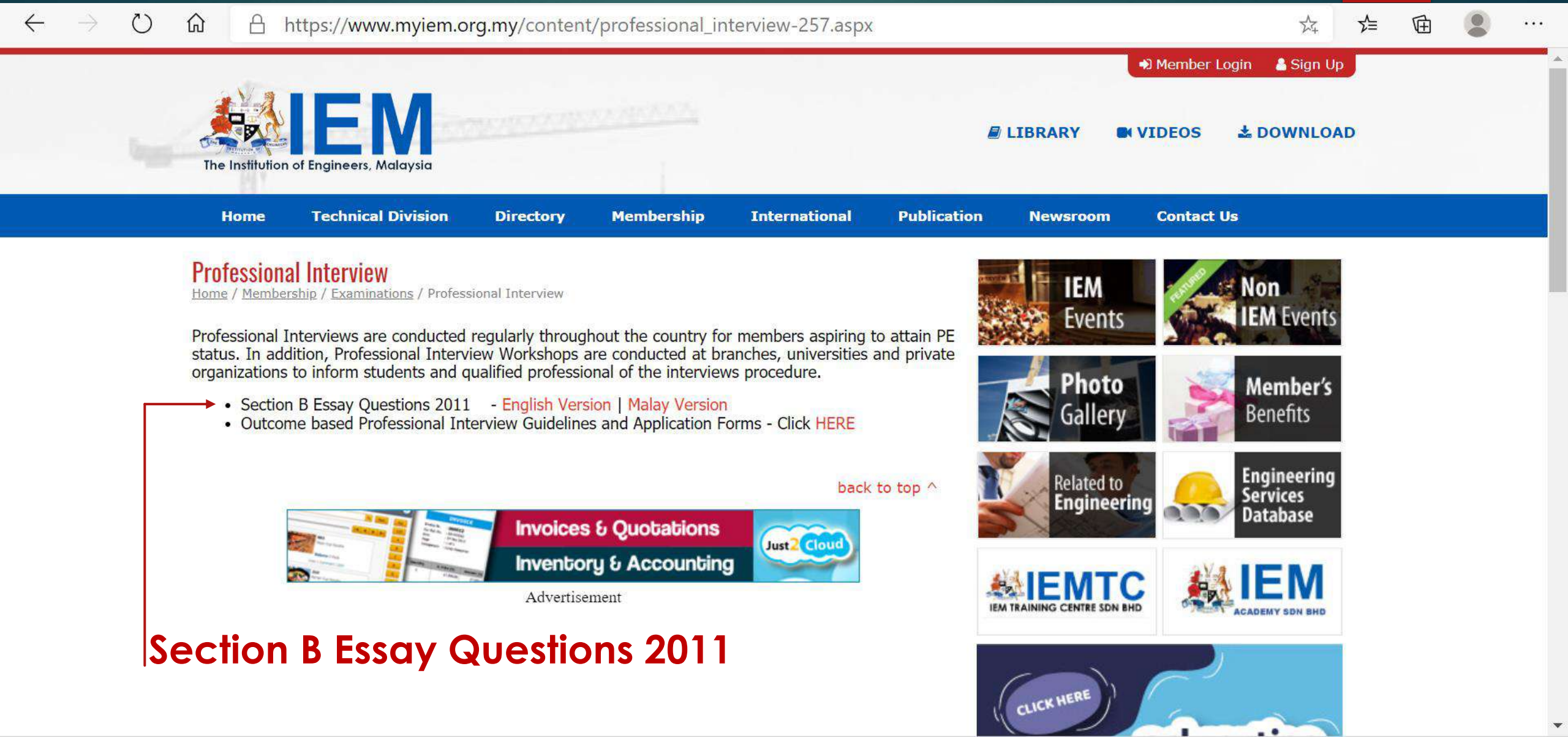
Additional Information	Posted on		
PI Guidelines and PI Application Forms -	05-Mar-2020	Download	Post Comment

What is Expected of Candidates in the IEM Professional Interview?

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

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

https://www.myiem.org.my/content/professional_interview-257.aspx



Section B Essay Questions 2011

https://www.myiem.org.my/content/professional_interview-257.aspx

INSTITUSI JURUTERA MALAYSIA

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THE PROFESSIONAL INTERVIEW QUESTIONS

Section B Essay Questions

Questions applicable to Section B of the Essay as at 1.1.2011

Questions on Regulations on Professional Conduct

The main purpose of these questions is to provide an opportunity for the candidates to demonstrate their professionalism. A candidate should have gained some understanding of the IEM Regulations on Professional Conduct before entering for the Professional Interview.

A candidate would be expected to demonstrate:-

(a) That he has thought sufficiently about the role of the engineer in the society vis-à-vis his Professional Conduct.

(b) That he can write in clear and concise manner that is intelligible to laymen.

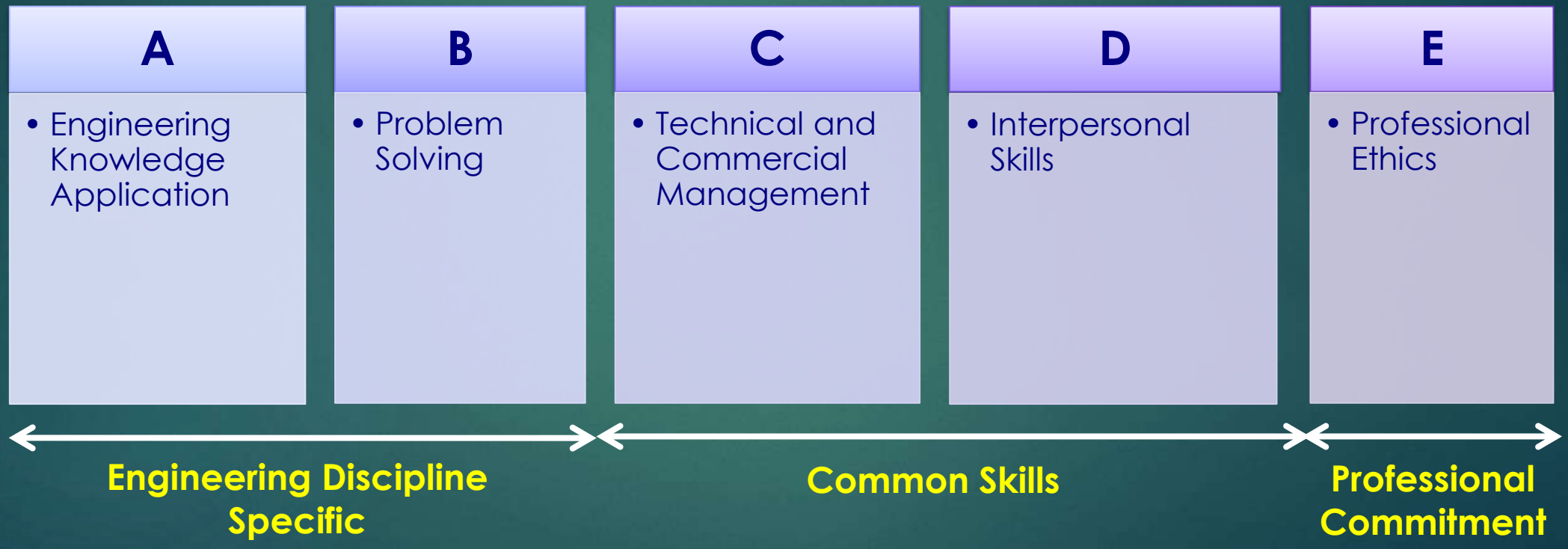
The Oral Interview

Highlights of the IEM P.I. Process

Key Terms	Definition / Description
Competency Category (A-E)	A group of Competency Elements that are classified under **a broad area of professional competency** required for the assessment in Professional Interview.
Competency Element (3-5 per category, total 18)	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.

What are the 5 Competency Categories?

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



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

Competency Elements – 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 personal knowledge, understanding and technical skills in own and allied fields of specialisation. **e.g. Engage in informal learning in recognised workshops etc. and on the job learning.**
A2	Learn and broaden personal knowledge and experience in the technology, products or services related to own specialisation, preferably with a view to improvement. **e.g. Use evidence of new technologies to improve effectiveness.**
A3	Comprehend and apply knowledge and understanding of the relevant engineering codes, standards, specifications, applications, especially those appropriate to local context, requirements, and application. **e.g. Apply engineering codes, standards, local building by-laws in engineering design.**

Competency Category A: Engineering Knowledge Application

Competency Elements – 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 projects and/or opportunities/problems. **e.g. Define engineering problems and possible solutions for projects assigned.**
B2	Conduct appropriate research and undertake design and development of engineering solutions. **e.g. Initiate value engineering and whole life costing.**
B3	Implement design solutions and evaluate their effectiveness. **e.g. Manage project implementation and record lessons gained for future improvement.**

Competency Category B: Problem Solving

Competency Elements – 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/job task implementation. **e.g. Optimise conceptual design for project implementation.**
C2	Plan, budget, organise, direct and control tasks, people and resources. **e.g. Carry out project, resources and cost planning.**
C3	Lead teams and develop staff to meet changing technical and managerial needs. **e.g. Lead project team and staff to meet project datelines and needs.**
C4	Bring about continuous improvement through quality management. **e.g. Continuous quality checks on product.**

Competency Category C: Management

Competency Elements – Oral Interview

What are Competency Elements D1, D2 & D3?

COMPETENCY CATEGORY D (Detailed)

D	**Demonstrate effective interpersonal skills.**
D1	Communicate in National or English Language with other at all levels. **e.g. Thorough, clear and precise in verbal and written English or Malay language.**
D2	Present and discuss proposals. **e.g. Articulate technical solutions and alternative proposals to clients and other consultants.**
D3	Demonstrate personal and social skills. **e.g. Managing team to achieve a common goal.**

Competency Category D: Interpersonal Skills

Competency Elements – 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. **e.g. Exhibit ethical decisions in task assigned.**
E2	Manage and apply safe systems of work. **e.g. Conduct health and safety inductions and meetings.**
E3	Undertake engineering activities in a way that contributes to sustainable development. **e.g. Promote sustainable practices at work and use resources efficiently.**
E4	Carry out record continuing professional development (CPD) necessary to maintain and enhance competence in own area of practice. **e.g. Attend relevant BEM/IEM sanctioned CPD courses to enhance competence.**
E5	Understand the legal matters pertaining to engineering profession. **e.g. Be familiar on legal issues and statutory requirements in field of engineering.**

Competency Category E: Professional Ethics

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

Category	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	2.6
	3	3	3	2	2		
						Total Score	13.5
						Final Average Score	**2.7**

TO PASS:

- An average > or = 2.6
- Category A & B > or = 2.3
- Category C, D & E > 2.0
- E1, E2, E3 > 2.0

Written Essays

Competency Elements – **Written Essays**

- ✓ Each **Competency Category** consists of a few **Competency Elements**.
- ✓ There are **9 Competency Elements** under the **3 Competency Categories** – refer to document IEM PI 0400.
- ✓ The Professional Interview will **directly assess** PI Candidates on all the 9 Competency Elements.
- ✓ There are **four (4) levels** for assessing Candidate's attainment of each competency element.

Competency Elements – 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

Competency Elements – Written Essays

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

Competency Elements – Written Essays

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

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

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.

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?

- ✓ Have maturity of thought, able to focus on core issues rather than petty matters
- ✓ Exhibit ethical judgement in conduct of works, integrity and good governance
- ✓ Awareness on sustainability, health and safety issues

What is Expected of Candidates in the IEM Professional Interview?

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

1. Training & Experience Report (or Portfolio of Evidence Report)
2. Technical Report
3. Oral Examination
4. Essay writing (Sec. A) – technical essay relating to practical experience
5. 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

Way Forward

The Big Picture

Launch!

Membership Survey – Log Book Update

Aligning to IEM Professional Interview Process

Mentor's Appreciation & Mentee's Well Being

Database Update

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.

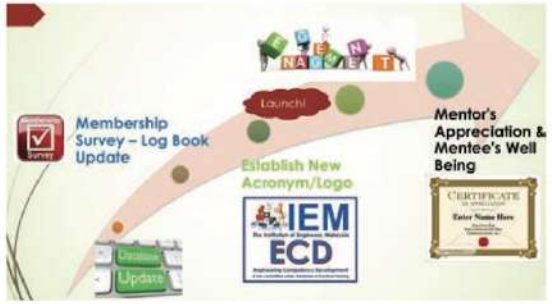
It is with this very core essence of its establishment and to support the change of professional engineer interview from outcome based to competency-based assessment that IEM has rebranded LBTS to Engineering Competency Development (ECD).

Since its inception, many graduate members have benefitted 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.

Another major finding was that LBTS needed to be made online and paperless. This was actually the approach the committee felt strongly about, moving forward. However, such interface would require a major information technology setup which would mean high financial investment. The committee agreed that the project should be conducted over a longer period of time in multi-stages to go along with the upgrading of IT infrastructure at IEM.

We shall update the progress in upcoming articles. Other findings relating to the improvement process are in the process of implementation or will be reviewed and implemented in the near future.

Thirdly, to be current with the industry and in-line with the changes in IEM, a new name was deemed necessary. The IEM PI assessment format was enhanced to competency based with the last batch of PI applicant registered by 31 December, 2017. So, a "competency" based assessment need to be supported with mentorship that focused on competency based as well. This was where LBTS needed to be enhanced. The competency was not about focusing on traits of engineers personally but rather their engineering capabilities. This programme may also be expanded to include potential members from backgrounds such as technicians and technologists, once the organisation has designed the career development path of these groups of members.

A new logo was introduced, together with the new name "Engineering Competency Development" (instead of "Log Book Training Scheme"), as part of the marketing impact for brand recognition.

The fourth element in this rebranding exercise is engagement. We believe that all programme participants need support from the IEM secretariat and committee members. With this in mind, we will bring in more mentor and mentee support sessions to continue to brief and refresh participants about the programme, update new features (if any), and answer queries from members. The committee shall also start monitoring such sessions at the branch level and provide support as required. In 2017, the committee started the initiative of training trainers for branch representatives to conduct such briefings at their respective locations.

The "train the trainer" programme was implemented to reach out to more qualified mentors, especially to cater to the needs of branches outside the Klang Valley (HQ). This will make the programme more effective in serving mentees at their respective regions. In addition, the trainers can also organise mentor-mentee engagement sessions to support more graduate members requiring mentors to pursue the professional certification. The committee will continue to provide such support and seek cooperation from all to engage the secretariat in-charge and the committee for any assistance required.

The last element is recognition for mentee and mentor. For the mentees, we encourage giving feedback on their mentors, introducing a mentor recognition programme and social media engagement. We encourage feedback on the mentors, be it positive or requiring improvements. Feedback is important to monitor the suitability of a mentor and a mentee. This is a 3-year relationship during which both parties will need to connect with each other professionally. Should the match between a mentor and mentee not be achieved, then we should find alternatives. Mentor recognition is also another way for mentees to provide the best feedback on their mentors. We have heard many stories of the admiration mentees have for their mentors and we would like to make these stories known. Do not hide your admiration but instead recognise the efforts of your mentor.

When social media engagement started a few years ago on Facebook, many graduate members preferred this method of reaching out for assistance. We shall streamline and promote more such social media presence.

As for mentors, we shall maintain the list of mentors on the website as part of an elite group of people who has reached a certain level of ability to be a mentor in the industry, appreciation letters and a mentor recognition programme. These are members who are able and willing to altruistically help others to be as successful as they are.

When a mentee becomes a corporate member, the mentor will receive an appreciation letter signed by the IEM President. We believe a mentee's success is also that of the mentor's. Another form of recognition for mentors is the annual "Top 5 Mentors". Based on the feedback from mentees, these 5 mentors will be given recognition at an official IEM event.

For now, these are the elements of our rebranding effort. The Committee would like to thank all survey participants for providing ideas on how they would like to see the programme sail in the IEM organisation, how to make it relevant in the industry and how to engage with the participants.

We will provide updates, from time to time, on the progress of the ECD programme. This is part of our engagement efforts for all members. We must remember that all the committee members and mentors in this programme are volunteers who are passionate about helping the younger generation achieve career development satisfaction with professional certification.

Contributing our personal time and sharing our knowledge and experiences are done in the hope that our contributions will translate into the development of Malaysia and bring the country to greater heights. Therefore, instead of criticism, let us think of how the programme can be made better. We will certainly appreciate help in any way possible. Let us all work together. ■

August 2018 Jurutera
- 2-page article on ECD rebranding


THE SUB COMMITTEE ON ENGINEEERING COMPETENCY DEVELOPMENT (ECD) PROUDLY PRESENTS
IEM TOP MENTORS AWARD 2022
The IEM Top Mentors Award recognises the IEM Engineering Competency Development Mentors who have gone the extra mile to inspire and help their Mentees to become Professional Engineers.
If this is your Mentor, click HERE or Scan the QR code to nominate by 15 MARCH 2023.
Enquiry: ecd@iem.org.my
SCAN ME


The Sub Committee on Engineering Competency Development (ECD) proudly presents
IEM TOP MENTORS AWARD 2021
The IEM Top Mentors Award recognises the IEM Engineering Competency Development Mentors who have gone the extra mile to inspire and help their Mentees to become Professional Engineers.
If this is your Mentor, do nominate.
SCAN ME
Click HERE or scan the QR code to nominate by 24 JUNE 2022.

Way Forward – Where you are heading to…

Complimentary Workshops:

- IEM Professional Interview Workshop
- IEM Structured Training Workshop

Thank You

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The Institution of Engineers, Malaysia
ECD
Engineering Competency Development
A Sub-committee under Admission & Practical Training

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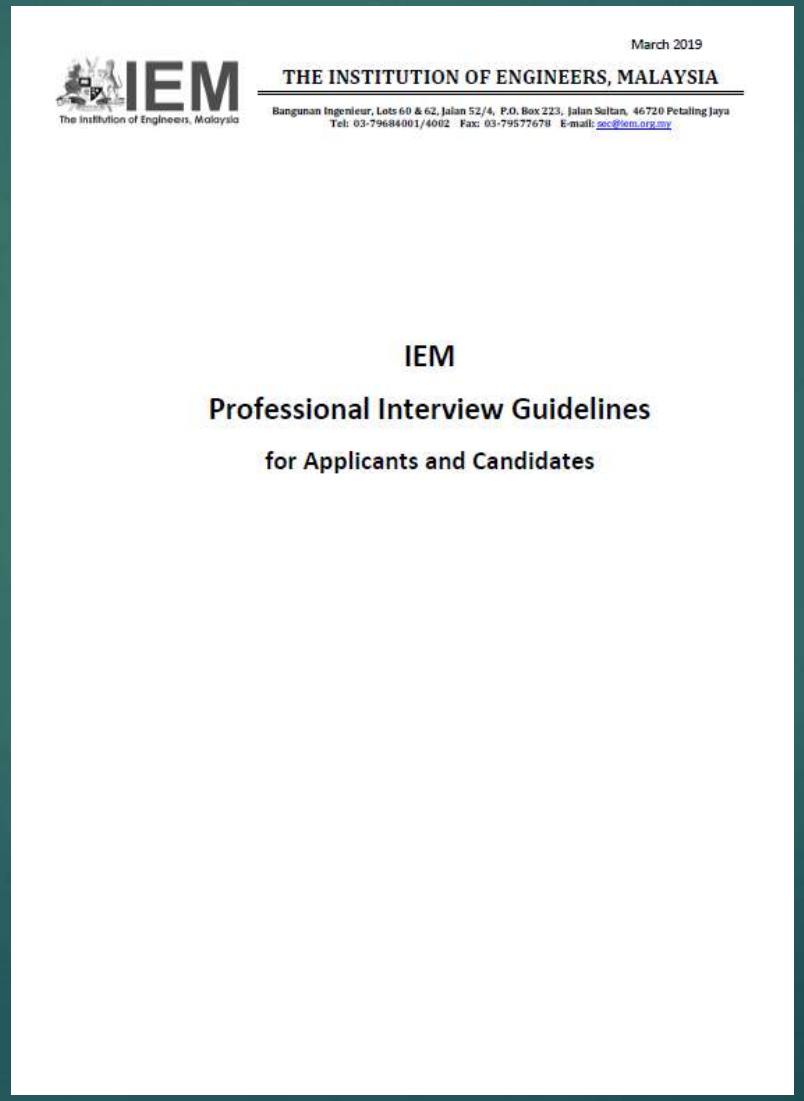
Additional Notes and Examples for:

Candidates from Academia for Professional Interview

IEM Professional Interview Guidelines



March 2019

IEM
The Institution of Engineers, Malaysia

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IEM

Professional Interview Guidelines

for Applicants and Candidates

IEM Professional Interview Guidelines

Lecturing Candidate means a "Teacher in Engineering" who is engaged in teaching a course leading to a qualification in engineering research or teaching a course leading to a qualification approved by the Board; and at least one (1) Year of such practical shall be obtained in Malaysia under the supervision of a registered Professional Engineer of the same discipline or an approved allied discipline and shall be in fields of engineering practice other than in research or teaching.

In addition to these prerequisites, he must have not less than three (3) years' experience, which may include a period on:

a) an approved course of full time post-graduate study, or

b) on research for the award of a higher degree, or

c) research done whilst holding the position of lecturer in an accredited degree course.

IEM Professional Interview Guidelines

Research and Development Experience means the Applicant who has been engaged in engineering research work as a prerequisite for his practical experience in engineering to qualify him to attend his Professional Interview, and is doing research at the time of his application to sit for the Professional Interview.

The candidate shall have at least five (5) years of experience made up of the following:

a) responsible position in engineering research; research for the award of a post graduate Master or Doctorate degree could be considered for an aggregation up to a maximum of one (1) or two (2) years respectively depending on the duration of the research; and

b) cumulative of one (1) year approved practical experience under the supervising engineer of the same discipline.

IEM Professional Interview Guidelines

- Lecturing or Research candidates needs to have a minimum of 1 year practical experience under the supervision of a Professional Engineer of the same discipline.
- The 1 year minimum practical experience can be design or site or a combination of both.

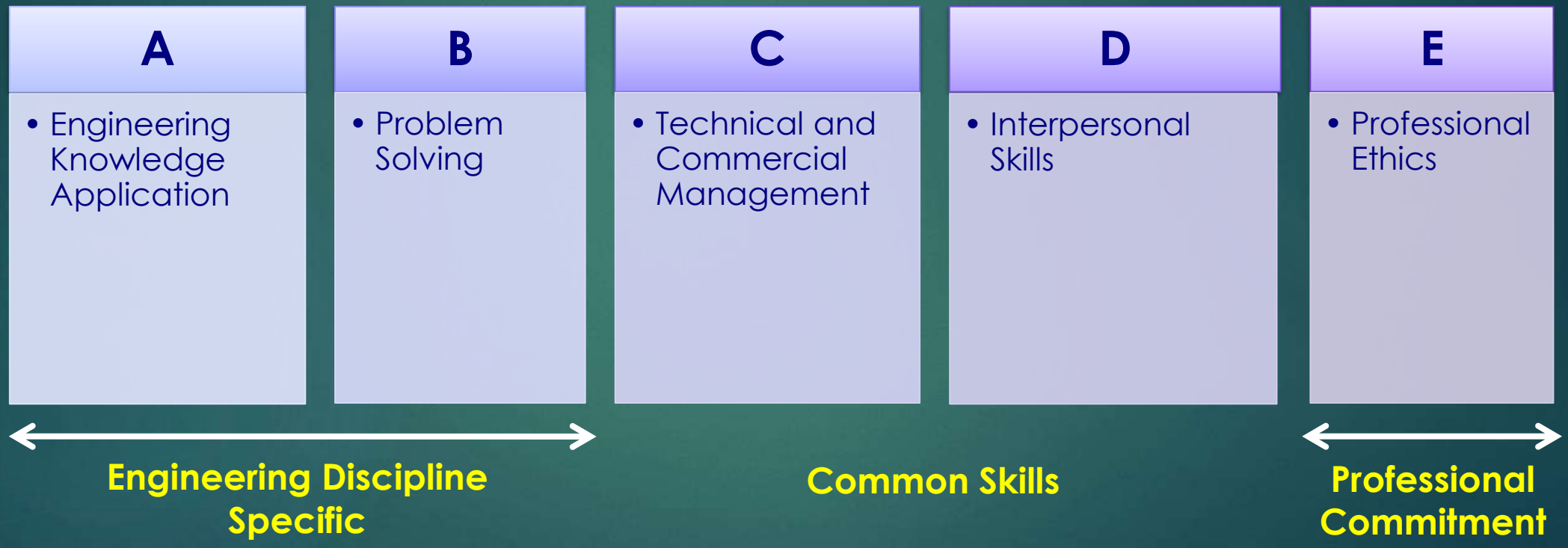
IEM Professional Interview Guidelines

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

What are the 5 Competency Categories?

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



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

Examples for Academia

Category A: Engineering Knowledge Application

- Teach a course that is part of a programme accredited for the registration category that you intend to apply.
- Devise a teaching course or developed a new engineering programme.
- Supervisor for postgraduate students or external examiner for undergraduate engineering programmes.

Examples for Academia

Category B: Problem Solving

- Teach students to use software to solve engineering problems.
- Use innovation (e.g. blended learning) in delivery of teaching and learning.
- Update teaching programme to reflect industry needs or external moderation feedback.
- Running engineering projects with an external partner.

Examples for Academia

Category C: Technical & Commercial Management

- Plan a research programme and obtained the necessary resources.
- Manage externally funded research projects.
- Led a major departmental function e.g. programme or laboratory management.
- Chair Faculty's Committee on academic or administrative matters e.g. Health and Safety Committee.

Examples for Academia

Category D: Interpersonal Skills & Communication

- Disseminate research results to enhance Institution's reputation for high quality research.
- Developed a new engineering programme with academic team.
- Steps taken to ensure continuous quality improvement and effectiveness of your courses.
- Active involvement in academic audit.

Examples for Academia

Category E: Professional Ethics

- Promote the profession and professional values that apply in the field of engineering.
- Influenced the development of public policy in line with Institution objectives for the engineering profession.

IEM

The Institution of Engineers, Malaysia

ECD

Engineering Competency Development

A Sub-committee under Admission & Practical Training

THANK YOU