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# Engineering Competency Development

# Program Guidelines

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## 1. INTRODUCTION

### 1.1 Definition

This document presents the Engineering Competency Development (ECD) Program Guidelines, which is the primary document to be referred in facilitating the planning and execution of the program by the IEM. The other but secondary references are the BEM's Professional Development Program, IEM's Professional Interview Guidelines, and IEM's Structured Training Program Guidelines.

### 1.2 Glossary and Interpretation

*Glossary*

- **Board of Engineers**, or abbreviated as BEM, is the regulatory body responsible for the registration of individuals practicing the profession of engineering in Malaysia in accordance to Registration of Engineers Act (1967) and its subsequent Amendments
- **IEM** is the abbreviation for "The Institution of Engineers, Malaysia."
- **IEM Corporate Member** means a member of IEM who has been admitted or transferred into the grade of Member (MIEM) or Fellow (FIEM) upon satisfying the IEM Council that he has attained such standard and criteria as set by the Council being evidence of his proficiency as a professional engineer.
- **IEM Graduate Member** means a member of IEM who has been admitted or transferred into the grade of Graduate Member (Grad IEM).
- **IEM ECD Program** means the training program organized by IEM to provide guidance to a proper practical training for IEM Graduate Member who wish to attain registered Professional Engineer status with BEM and to assist on fulfilling the requirements for his transfer to be a Corporate Member of IEM.
- **ECD Logbook** means the formatted book document issued by the IEM to the mentee for the latter to record in chronological order his training and experience. This logbook can be downloaded from the website.
- **Member** means a Corporate Member of the Institution of Engineers, Malaysia.

- **Mentor** means an IEM Corporate Member of the same discipline, who has been assigned to supervise the practical training of an IEM Graduate Member under the IEM ECD Program.

- **Mentee** means an IEM Graduate Member who has chosen or opted to undergo practical training supervised by an IEM Corporate Member of the same discipline under the ECD Program**.**

- **Professional Interview Guidelines** is the document servicing an IEM Graduate Member to facilitate preparation to attend a Professional Interview, issued upon the IEM Graduate Member's official registration with the IEM to attend the Professional Interview.

- **Site / Field Experience** means the period of training and experience of the Candidate during which he spends his time in the site/field either supervising an engineering work, conducting his research and development work, or being involved in operation and maintenance work.

  o Site/field experience shall not consist merely of periodical and routine site/field inspections, attending site meetings, but shall have to include activities which demonstrate engineering proficiency and competency like troubleshooting, site situational problem solving, clarifying of design uncertainties, proposing of better alternative designs, reviewing parameters and improving work procedures and standard practice, surveys, material testing and work sequencing.

  o With regard to the Civil Engineering discipline, the Candidate has to spend at least twelve (12) months in the site/field, while a Candidate from other disciplines has to spend a minimum of six (6) months at the site/field.

- **Structured Training Guidelines** is a set information intended to advise participants of an implemented Structured Training Program of the program's content and description, work plans and activities, as well as requirements and rules for participation"

- **Supervising Engineer** means an engineer in-practice – whether or not is a registered Professional Engineer and/or an IEM Corporate Member of the same engineering discipline – who has personal knowledge of the roles and responsibilities of, and who has been employed within the same organization as, a standing or an applicant Mentee.

*Interpretation*

Unless the context requires otherwise:

- words in the singular include the plural and vice versa;
- words importing the masculine gender include the feminine gender;

## 2. IEM ECD PROGRAM

The ECD Program or previously known as the Log Book Training Scheme (LBTS) was established by the IEM to provide proper practical training with guidance for its graduate member engineers entering into the profession of engineering and to ensure that such training conforms to the Rules and Regulations concerning the admission of Corporate Members and towards allowing graduate engineers attain the Professional Engineers status with the BEM.

A candidate appearing for the Professional Interview (PI) is required to obtain his/her practical experience under a practical training program duly supervised by a Corporate Member of the IEM and/or a Professional Engineer (PEng) with the BEM.

Through the program, a mentee Graduate Member engineer will be progressively monitored, assessed, and advised by a mentor Corporate Member Engineer, which requires planned and acquired practical experience and developmental training.

Under it, a mentee will be required to complete a minimum of three (3) years of such mentored training under a mentor of the same professional engineering discipline - endorsed by the IEM.  Depending on the level of experience of the Graduate Member engineer and readiness of documentation for the PI, a mentor may recommend and the ECD Sub-Committee may support to proceed earlier or later than the 3 years requirement.

**3.      TERMS OF REFERENCE**

The terms of reference for ECD Program are as follows:

3.1      Scope and Work Objectives

- Selection of a mentor by mentee
- Initial acquaintance and (training and experience) baseline assessment session between mentee and prospective mentor(s)
- Endorsement of the selected mentor and training program by the IEM
- Conduct of the ECD Program (details in section 3.2 below)
- Preparation of the necessary log documents to be signed by the mentor and shall submit the Log Book to the IEM on satisfactory completion of the period of training program - and when attending the Professional Interview
- Issuance of an official notification by the IEM stating the Mentee's successful completion of the ECD Program, and the option of either to attend the Professional Interview or to continue further with the training program.

3.2      Conduct of ECD Program

- Registration of Mentor under ECD Program
- Interested IEM Corporate Member who do wish and volunteer to register as Mentor shall be registered by the Secretariat and the list of Mentors shall be maintain and keep under review by the IEM
- The interested Mentor shall submit to the Secretariat his/her intention to become Mentor on the prescribed Form. The qualifying requirements of a Mentor are as follows: -
    - Must be a Corporate Member (FIEM, SMIEM or MIEM);
    - Must be a Professional Engineer (PE) registered with the Board of Engineers, Malaysia (BEM) for at least 3 years, AND;
    - Must attend the IEM Mentors Engagement session AND PI Workshop at least once, AND;
    - Must not have more than three (3) Mentees at any time, AND;
    - Must be in the same or related discipline with the Mentee.

- He/She shall undertake to report any change of circumstances which may prevent him from providing proper training to the candidate.

- The Mentee shall perform his/her practical training under the ECD Program as per the IEM prescribed format.

- The Mentee may download the log book format from the IEM website and maintain the log book in order for the Mentor to provide his/her endorsement (P. Eng stamp and endorsement).

- The Log Book shall be recorded and updated every three (3) months till the completion of minimum 36 months, or three (3) years of post-graduation experience, under the supervision of the Mentor endorsed by the IEM. The Mentee is expected to continually review the experiential exposures and training (staff development) with his/her Mentor, at least once every three months (quarterly) for guidance and verification.

- A continual review of a Mentee's experiential exposures and training can be conducted either in-person or via online at the mutual convenience of the Mentee and Mentor. However, the requisite quarterly reviews, including the activity of critical review and confirmation of the Log Book's summary annual report, need to be conducted in-person between Mentee and Mentor. Submission by Mentee of Mentor-confirmed quarterly and annual Log Book reports to the IEM Secretariat can be done online."

- Content of Log Book
  - It is expected that all the relevant training and experience matters be recorded in chronological order and such activities be properly vouched together with activities associated with the IEM and other engineering profession entities.
  - Examples of topical matters expected to be included in the Log Book are as follows: -
  - Workshop and Site Activities
  - Surveys, investigations and reports.
  - Design and drawing office
  - Estimation and cost control
  - Project and contract management
  - Production, quality control and manufacturing processes
  - Organization, supervision and administration
  - Technical Sales.
  - Research & Development and Teaching.

     o Any additional courses to the normal or post graduate university Program should be indicated in the relevant pages of the Log Book to be endorsed by the Mentor. Details are to be presented with relevant evidence that Mentee has taken the course accordingly.

### 3.3  Roles and responsibilities of Mentee

- Mentee shall ensure that the Mentor has the relevant experience in the field that he is working now so that he/she can get relevant advice.
- Mentee shall get permission from his employer organization on the ECD Program in order to sanction the type and level of confidentiality and information that can be shared with the Mentor when reporting his training and work experience.
- It is advisable that the ECD Program possibly be incorporated into the Mentee's staff development program so that training under the program can be supported by the organization.
- Mentee shall make the necessary arrangement to allow the Mentor to visit to his workplace, if necessary and essential to facilitate or improve the mentoring process.
- Mentee is responsible to plan and arrange the appointment with Mentor on a regular basis, at least once in every three (3) months. Meeting schedule and the mode of meeting shall be mutually agreed upon by both parties. Alternatively, meetings could be conducted virtually via online platform and if possible be recorded.
- Mentee shall prepare proper logged reports and documentation to be verified by the Mentor during the scheduled meeting. Alternatively, verification of Mentors of the documentation can be done via electronic endorsement and signatures.
- Mentee shall make the effort to get the training and experience necessary as required by Professional Interview Guidelines within the mentorship period.
- Mentee is responsible to timely submit annually his/her log book document to the IEM for endorsement.
- Alternatively, Mentee may submit the log book in electronic copy to IEM for endorsement

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

### 3.4 Roles and responsibilities of Mentor

- Mentor is to assess the Mentee's baseline capabilities and in relation to the developmental support, if any, possible from the Mentee's employer organization, to possibly enable the ECD Program be accounted as part of the Mentee's staff development plan.
- If the Mentee's employer organization does not support the Mentee's staff development, the Mentor shall advise the Mentee on the possible requirements needed so that the Mentee can take appropriate action to gain the training and experience needed.
- The Mentor needs to agree on regular meeting schedule with Mentee, at least once in every three (3) months, so that the latter's progress can be continually tracked. Alternatively, meetings could be conducted virtually via online platform and if possible be recorded.
- It is advisable that Mentor pays a visit to the Mentee's employer organization to understand the Mentee's training and experience (staff development) situation, towards facilitating the Mentor's baseline assessment on the Mentee's capabilities under the ECD Program.
- Mentor shall review and make advisory comment 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 requirement. Alternatively, comments and verification of Mentors of the documentation can be done via electronic endorsement and signatures.
- The mentor should particularly check that the minimum duration spent in activities for design, field, and management experience is obtained during the ECD Program period
- The Mentor should ensure that he/she does not have any issue on conflict of interest with mentee's employer organization during ECD Program period
- In the event the Mentor could not continue participating in the ECD Program, the Mentor shall advisably on at least a month's notice advise, both, Mentee and IEM for a replacement.
- A single ECD Program should only apply to a single engineering discipline.
- It is advisable for the mentor to encourage and support the mentee to sit for the Professional Interview after the completion of the ECD Program. The mentor shall advise the requirement and the process needed for the mentee to become a Professional engineer with BEM and a Corporate Member of IEM.