Asia-Pacific
Economic Cooperation

APEC ENGINEER REGISTER MALAYSIA

ASSESSMENT STATEMENT

Board of Engineers, Malaysia

The Institution of Engineers, Malaysia

Association of Consulting Engineers Malaysia

Issue 2 Revision 2
2017

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Asia-Pacific
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ASSESSMENT STATEMENT

1. **PREAMBLE**

The Board of Engineers Malaysia (BEM), The Institution of Engineers, Malaysia (IEM) and Association of Consulting Engineers Malaysia (ACEM) have participated in the development of the Register in Malaysia. Malaysia has maintained a Committee to co-ordinate and monitor the registration of this APEC Engineer Register.

The actual implementation of and the admission to the Register are handled by IEM.

2. **DEFINITION OF APEC ENGINEER**

The APEC Engineer is defined as a person who is recognised as a professional engineer and is also a corporate member of the professional institution in the home country. He will then be a professional engineer with thin an APEC economy, and a person who has satisfied an authorised body in that economy, operating in accordance with the criteria and procedures prescribed in The APEC Engineer Manual.

3. **OBJECTIVES OF THE REGISTER**

The register is part of the initiatives for trade liberalisation in professional services, serving to reduce barriers and ease the process for engineers to gain access to work and practise in other jurisdictions.

The purpose of the Register is also to recognise the equivalences in the qualifications and experience of practising engineers in the participating economies and to facilitate trade in engineering services between those participating economies.

4. **COMMITTEE OF APEC ENGINEER REGISTER**

The Registration and Administration Committee shall co-ordinate and approve the processing of the APEC Engineer Register within the participating jurisdictions. Each authorised body in the APEC jurisdiction will arrange to provide timely and accurate information on the status of any practitioner claiming to be listed on its APEC Register to any person or organisation having a legitimate need for access to such information; to exchange relevant data with the other authorised Monitoring Committees, and within their jurisdiction; to function as a simple point of contact for all matters relating to the APEC Engineer.

In Malaysia, as required by the IPEA/APEC Engineer Framework, the IPEA/APEC Engineer National Monitoring Committee was set up. The Committee includes the representatives from the three leading engineering organisations that are the key stakeholders.

As the register was implemented and processing of admission was handled by the IEM, a Registration and Administration Committee was set up. This Committee monitors and audits the mechanisms to determine the eligibility of professional engineers under the Registration of Engineers Act; and corporate members of IEM to be registered in the APEC Engineer Register for Malaysia.

Each authorised National Monitoring Committee must further undertake to:

a) accept and promote the substantial equivalence of the competence of APEC Engineers registered by other authorised Monitoring Committees ;

b) make every reasonable effort to ensure that the bodies responsible for registering or licensing professional engineers to practise within their respective economy recognise that APEC Engineers have general technical and professional competence substantially equivalent to that of engineers already registered or licensed in that home economy;

c) ensure that all practitioners registered by them as APEC Engineers comply fully with the requirements specified in the APEC Engineer Framework, and that a substantial majority of these practitioners have demonstrated their compliance through the primary procedures and criteria set out in the Assessment Statement for that economy

d) ensure that practitioners applying for registration as an APEC Engineer are required to provide evidence that they have engaged in an appropriate level of recent continuing professional development (the emerging norm for continuing professional development programs in APEC economies is an average of 50 weighted hours per year of formal and informal training broadly related to the area of practice); and

e) ensure that practitioners registered by them as APEC Engineers apply from time to time for renewal of their registration, and, in so doing, provide evidence that they have engaged in an appropriate level of recent continuing professional development.

The Monitoring Committee in each APEC economy recognises that any agreement, which would confer exemption, in whole or in part, upon APEC Engineers from further assessment by the statutory bodies that control the right to practise in each economy, could be concluded only with the involvement and consent of those statutory bodies and the relevant governments. Only complete or partial exemption of APEC Engineers from the assessment mechanism operating in the host jurisdiction is at issue, not exemption from the requirement to become licensed or registered in the economy concerned.

5. PURPOSE OF ASSESSMENT STATEMENT

The purpose of the Assessment Statement is to provide a framework for the assessment of qualified engineers to be registered and the name listed in the APEC Engineers Register

PART A - APEC ENGINEER/IPEA ENGINEER MONITORING COMMITTEE

1. NATIONAL MONITORING COMMITTEE – MALAYSIA

The term of the Committee members is valid for session August 2016 until August 2017.

The Committee members are as follows:

CHAIRMAN

YBhg. Dato' Sri Ir. Dr. Roslan bin Md. Taha

MEMBERS

Ir. Ong Ching Loon
(IEM's Rep)

Dato Ir. Dr Gue See Sew
(IEM's Rep)

Ir. Datuk Wira Ir. Md. Sidek bin Ahmad
Alternate Chairman
(BEM's Rep)

Tan Sri Dato' Ir. Dr. Mohd Zulkifli bin Tan Sri Mohd Ghazali
(BEM's Rep)

Ir. Wong Loo Min
(Identified PE)

Ir. Rocky Wong Hon Thang
(Identified PE)

Dato Ir. Abdul Rashid bin Maidin
(Identified PE)
(BEM's Rep to Registration & Administration Committee)

Datuk (Dr) Ir. Abdul Rahim bin Hashim
(Identified PE)

Ir. Chow Tet Fah
(ACEM's Rep to Registraion & Administration Committee)

2. **REGISTRATION AND ADMINISTRATION COMMITTEE**

The Committee members for session 2016/2017 are as follows:

APEC Engineer/IntPE Registration & Administration Committee

CHAIRMAN

Dato Ir. Dr Gue See Sew

REP FROM BEM

Dato Ir. Abdul Rashid bin Maidin

REP FROM ACEM

Ir. Chow Tet Fah

MEMBERS

Ir. Lee Boon Chong

Ir. Ong Ching Loon (IEM's Rep)

Dato' Ir. Prof Dr Ow Chee Sheng

Ir. Ang Choon Hug

Ir. Dr Abdul Bakar Mahat

Ir. Yau Chau Fong

Ir. Dr Norlida Buniyamin

Ir. Cheong Chee Kwong

Ir. K Gunasagaran

Ir. Prof Dr Siti Hawa Hamzah

3. **Membership Application Board**

The Committee members are as follows:

Ir. Pan Wang Fook (Civil) – *Chairman*
Ir. Reuben Selvarajah (Civil) - *Vice Chairman*
Ir. Hasrin bin Hashim (Mech) - *Secretary*
Ir. Hoo Choon Sean (Civil)
Ir. Dr Abu Bakar bin Mahat (Mech)
Ir. Tiong Choong Han (Civil)
Ir. Razmahwata bin Mohamad Razalli (Chem)
Ir. Spencer Klumai (Civil)
Ir. Dr Law Chun Lim (Chem)
Ir. Sulaiman bin Hasim (Civil)
Ir. Chew Shee Fuee (Elect)
IR. Lim Ken Ten (Elect)
Ir. Kim Kek Seong (Chem)
Ir. Dr. Low Tian Huat (Civil)
Ir. Teo Hiu Hong (Mech)
Ir. Dr. Nagur Aziz bin Kamal Bashah (Mech)
Ir. Lee Boon Chong (Elect)
Ir. Lee Soo Sin (Civil)
Ir. Dr. Tan Chee Fai (Mech)
Ir. Dr. Zainal Fitri bin Zainal Abidin (Mech)

4. Standing Committee on Admissions and Practical Training

The Committee members are as follows:

Ir. Dr Norlida binti Buniyamin (Electrical) – *Chairma*
Ir. Ishak Abdul Rahman (Civil) – *Vice Chairman*
Ir. K Gunasagaran (Civil) – *Secretary*
Ir. Mohd Radzi bin Salleh (Mech)
Ir. Prof. Dr Mohd Zamin bin Jumaat (Civil)
Ir. Prof. Dr Wong Hin Yong (Electronic)
Ir. Dr. Ahmad Kamil bin Arshad (Civil)
Ir. Dr. Muhammad Azmi bin Ayub (Mech)
Ir. Mohamed Ali Yusoff (Elect)
Ir. Prof. Dr Mohd Zamin Jumaat (Civil)
Ir. Gary Lim Eng Hwa (Mech)
Ir. Fam Yew Hin (Mech)
Ir. Li Thang Fai (Civil)
Ir. Dr. Aminuddin bin Mohd Baki (Civil)
Ir. Hoo Choon Sean(Civil)
Ir. Lee Boon Chong (Elect)
Ir. Ng Yong Kong (Mech)
Ir. Lai Sze Ching (Mech)
Ir. Mohd Aman Hj Idris (Elect)
Ir. Mohd Khir bin Muhammad (Aeronautical)
Ir. S. Kukanesan (Mech)
Ir. Pang Wang Fook (Civil)
Ir. Jayaseelan Nadarajah (Mech)
Ir. Chen Harn Shen (Civil)
Ir. Ong Sang Woh (Civil)
Ir. Teh Piaw Ngi (Mech)
Ir. Yam Teong Sian (Civil)
Mr. Tay Eng Chong (Elect*) YES Representative*

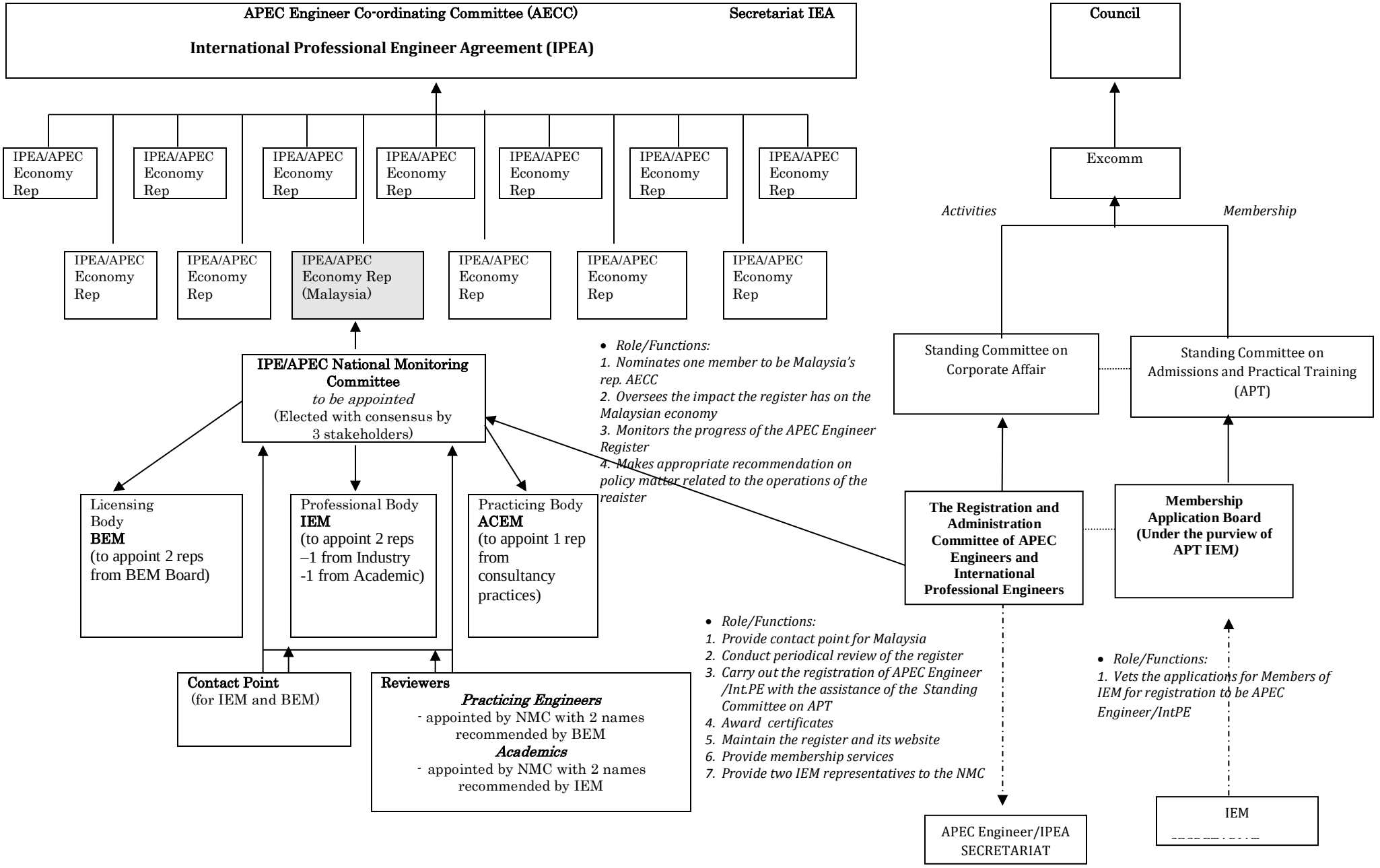
5. **Contact Persons**

IEM Hon Secretary
Email: aer@iem.org.my

6. **Flow Chart**

The flow chart on the role and duties of the Committees is appended:

Revised on 7 August 2012 (at the meeting)



7. Background on Engineering Institutions in Malaysia

a) Board of Engineers Malaysia (BEM)

Board of Engineers Malaysia (BEM) is a statutory body constituted under the Registration of Engineers Act 1967 with perpetual succession and a common seal, which may sue and be sued. It was formed in 23rd August 1972.

BEM falls within the ambit of responsibility of the Minister of Works. Vested with wide powers, the Minister may suspend the operation of the Registration of Engineers Act 1967 (REA 1967) in any part of Malaysia by notification in the gazette. The appointment of the Board Members and the Registrar is made by the Minister. **(The "Act" underwent major amendments and the Amendment Bill was finally passed by Parliament in December 2014 and gazetted on 24 February 2015.)**

Its primary role is to facilitate the registration of engineers and regulate the professional conduct and practice of registered engineers in order to safeguard the safety and interest of the public.

Through its mechanism of control, BEM has taken upon itself to reclassify the engineering works, streamline the Scale of Fees and amend the Engineers Act to reflect the pragmatic needs of the engineers and engineering industry. The objectives among others are:

1. To enforce the implementation of Continuing Professional Development (CPD).
2. To add more functions and advise the Government & Public.
3. To enforce the penalty in the REA 1967.
4. To enforce the suspension period.
5. To introduce new Part that deals with the establishment, powers & conduct of proceedings of a Disciplinary Committee.
6. Take action on submitting engineer related to Certificate of Completion and Compliance (CCC) or others.
7. Impose additional conditions to ensure engineers follow latest developments.

b) The Institution of Engineers, Malaysia (IEM)

The Institution of Engineers, Malaysia (IEM) was established on 1 May 1959 and its primary function is to promote and advance the science and profession of engineering in any or all of its disciplines and to facilitate the exchange of information and ideas related to engineering.

Being the premier civil service and professional institution, IEM promotes sound professional engineering practice in support of the socio-economic development objectives of the nation. IEM services the needs and interests of its members and the public and upholds the social standing and image of the engineering profession. The Institution continues to contribute towards nation building and strives to enhance society's consciousness of science and technology.

The objectives are:

1. to hold meetings, exhibitions and visits, and such other activities as The Institution may deem incidental or conducive to the promotion or attainment of the profession of engineering;

2. to raise the character and status and advance the interests of the profession of engineering and those engaged therein;

3. to promote honourable practice, and professional etiquette among members of The Institution;

4. to communicate to members information on all matters affecting the profession of engineering and to print, publish, issue and circulate such publications as may be deemed conducive to any of the objects of The Institution; and

5. to do such other things as the Institution may think incidental or conducive to the attainment of the objects of The Institution.

c) **The Association of Consulting Engineers, Malaysia (ACEM)**

Association of Consulting Engineers Malaysia, as its name implies, was formed with the object of promoting the advancement of the profession of consulting engineering by associating together for consultation and cooperation those engineers whose work is of a purely consultative character, and of providing facilities for Governments, Public Bodies, Associations representing industry and trade, and others to confer with Consulting Engineers as a body and to ascertain their collective views.

One of the primary objects of the Association is to ensure that Consulting Engineers undertaking to advice on engineering matters shall be fully qualified engineers in their respective fields and should act in all professional matters in a strictly fiduciary capacity to their clients.

8. **National Monitoring Committee (Malaysia) – Terms of Reference**

The National Monitoring Committee is based at the BEM while the Registration and Administration Committee to process membership for APEC Engineers Register is based in the IEM. The ACEM provides representatives to serve in both these two Committees.

The term of reference to this Monitoring Committee is to:

1. Oversee the impact the register has on the Malaysian jurisdiction
2. Monitor the progress of the APEC Engineer Register
3. Make appropriate recommendation on policy

9. **Registration and Administration Committee**

The IEM is the assessing body for qualifications and experience required for placement in the APEC Engineer Register. IEM sets up this Committee with the following Terms and Reference

1. To develop and maintain an assessment system to ensure that APEC Engineers meet the conditions of registration
2. To maintain the APEC Engineer Register in Malaysia
3. To ensure that the registration of APEC Engineers in Malaysia is in compliance with the conditions of registration
4. To process all applications for APEC Engineer Register
5. To maintain a database of registered APEC Engineers and their status
6. To receive, investigate and if possible resolve any complaints against APEC Engineers
7. To participate in any affairs and deliberations of the IPE/APEC Engineer Registration and Administration Committee
8. To forward any statement and information of the IPE/APEC Engineer Registration and Administration Committee
9. to the Stakeholders and to make proposal and review or recommendation for action.
10. To publish information on assessment procedures, criteria, systems and performance
11. To maintain the records and documentation of Review status in Malaysia
12. To maintain the APEC Engineer website for Malaysia
13. To provide the names of suitable members or representatives for the review of member economies
14. Function as the point of contact on all matters relating to APEC Engineers and the IEA Secretariat

10. **IEM Executive Committee and IEM Council**

As The Institution of Engineers, Malaysia has been entrusted to be the administrator of the two Registers; and has all the registration processes in place; and since the IEM is also the appointed institution for conducting both the Professional Interview and the Professional Assessment Examination for the Professional Engineer's status, it was agreed by the National Monitoring Committee that for the purpose of logistics and working efficiency, the IEM Executive Committee and the IEM Council be the appointed authority to approve all applications on their behalf.

The names of the approved APEC Engineers will then be reported back to the NMC for endorsement.

PART B - ASSESSMENT MECHANISMS

1 Requirements for admission in APEC Engineer Register

The Institution of Engineers, Malaysia is the appointed body to assess applicants seeking registration as APEC Engineer in Malaysia. Eligibility for admission to APEC Engineer Register is limited only to engineers who have completed an accredited or recognised engineering programme; and registered as a Professional Engineer for independent practice by either passing the Professional Assessment Examination conducted by the Board; and/or becoming a Corporate Member of The Institution of Engineers, Malaysia. The route to Professional Engineers, including the engineering programme accreditation, registration as Graduate Engineers, professional assessment examination and the requirement to fulfil the 50 points CPD for the year, will be used as a basis to assess the registration as the APEC Engineer. For the IEM, there is the need to comply with the admission as Graduate Member of the Institution, and passing the Professional Interview to become MIEM according to the IEM Professional Interview Regulations. Moreover, there is a prescribed minimum period of seven (7) years practical experience since graduation; of which minimum two (2) years period in responsible charge of significant engineering work. All applicants must agree to be bound by the Code of Professional Conduct and Ethics of both the IEM and BEM.

The assessment mechanism is applicable to all engineering disciplines. All requirement and rules are now available in the IPEA/APEC Engineer website hosted at IEM under the Resource Centre.

2 Accreditation or Recognition of Higher Engineering Education Programme

The applicant should have completed an engineering degree programme which is accredited and/or assessed to be substantially equivalent to that accredited by a full signatory of the Washington Accord. The Engineering Accreditation Council (EAC) Malaysia is the organization authorised to accredit engineering degrees in a Malaysia. Since EAC holds a full signatory status of the Washington Accord, the local engineering programmes accredited by EAC shall be deemed to satisfy in full the requirement for the accreditation of engineering education or academic achievement.

3. Registration as Professional Engineer with BEM

To be eligible for registration with BEM as a Professional Engineer, the applicants must meet the following conditions:

i. Has registered with the Board as a Graduate Engineer after having an accredited engineering degree;
ii. Has obtained at least three (3) years of practical experience after graduation;
iii. Has passed the Professional Assessment Examination (PAE) conducted by BEM; or is a Corporate Member of IEM; or holds a professional qualification that is assessed to be equivalent to PAE.
iv. Has complied with other requirements as determined by the Board.

4 Graduate Engineer Registration

In accordance with the provisions in the Registration of Engineers Act, Malaysia, any person who wants to take up employment as an engineer must be registered as a Graduate Engineer with BEM, that recognises the experience gained by an engineering graduate only after he has registered as a Graduate Engineer. As such, it is prudent for an engineering graduate to register as a Graduate Engineer at the very beginning of his engineering career.

A copy of the Amended Registration of Engineers Act could be obtained from the website of BEM at www.bem.org.my.

The recognised academic qualification for registration as a Graduate Engineer with BEM is assessed by the Engineering Accreditation Council. The approved list of accredited engineering programmes is updated and maintained by BEM.

5. Admission as Corporate Member of the IEM

Under the Constitution of The Institution of Engineers Malaysia, the applicant must satisfy the Council of the Institution that he has attained such standard as set by the Council to testify to his proficiency as a professional engineer, and that he is worthy of election in accordance to the Bylaws and Regulations of the Institution. Any applicant desirous of being a member of the Institution shall be proposed and seconded. The proposed form shall be signed by not less than two (2) Corporate members of whom at least one (1) shall be a Fellow of the Institution or a member of not less than 10 years standing in the Institution. The applicant must also indicate that he had undergone the Institution training scheme drawn up to provide practical training of young graduates entering the profession of engineering and to ensure that such training conforms to the election of Corporate members. Applicant is expected to obtain his practical experience in planning, design, execution or management of such works as stipulated and relevant for the profession of an engineer. The applicant can apply to sit for the Institution Professional Interview after having undergone at least three years of relevant work experience, either through the IEM Log Book Training Scheme or working experience under the guidance of a Corporate Member of IEM and a P.Eng of the same discipline.

Other training scheme(s) bearing similar provisions as the Institution Training Scheme may be accepted as its equivalent. However prior approval of the Institution is required for such scheme to be accepted.

Information on the IEM Professional Interview and the Training Scheme is available at the IEM website at www.iem.org.my

The Professional Interview so conducted by IEM requires the appointment of 2 Professional Interviewers. The Principal Interviewer is required to be at least not less than 7 years of experience while his second interviewer not less than 5 years. The Principal Interviewers is required to have interviewing experience as a second interviewer for at least three occasions. The Professional Interviewers will review the practical work experience claimed and assess the competency. During the interview, the applicant must be able to show that he can apply in practice, the theory of at least one of the branches of engineering science, and he must be ready to answer questions related to his work experience basically based on knowledge of engineering processes,

management, and understanding of investigation, planning, design, construction, manufacture, operation, maintenances and research. The applicants must have acquired an understanding of the fundamental processes of research, investigation, planning, analysis, design and construction wherever relevant by actually taking part in contributing to these processes in connection with an engineering research or project, whether or not it is brought to conclusion or fruition.

Acceptable engineering experience will have to include design as well as sufficient site exposure. The applicant will then have to complete the writing of two essays whereby the applicant needs to demonstrate and understanding of professional conduct, his understanding of the ROLE of engineers in the Society vis-à-vis his professional Code of Conduct and that he can write and present in a clear and concise manner.

6. **Admission as IEM Graduate Member**

A graduate member of the Institution must be a person who in respect of his age, his educational attainment and his practical training complies with the requirement of the Bylaws and Regulations. His degree must be accredited by the EAC.

7. **Alternative Assessment Mechanisms**

A graduate with an engineering degree (whether local or overseas) accredited or recognised by EAC is considered to have met the academic qualification requirement. While EAC evaluates and accredits local engineering programme, accreditation of overseas engineering degree programme is done by the respective signatories to Washington Accord. For those not listed in the Accord, recognition is assessed on a case-by-case basis. Any applicant or graduate who has not satisfied the requirement of the EAC accredited programme may top up his basic degree with a Master degree by course work taken from a recognised university where the related Bachelor degree is accredited by EAC. The reinforced Master degree must be in the same discipline or branch of engineering as the basic degree.

8. **Registration Requirement and Attainment of Work Experience**

All applicants are required to have a minimum of 3 years of acceptable engineering experience prior to being eligible for registration as Professional Engineer or election as Corporate member of the IEM. Acceptable engineering experience not only include what was mentioned in item 5 above but also include the application of theory and should provide exposure to or experience in the following broad areas; management, communication and the social implications of engineering.

All applicants for APEC Engineer must first be a Professional Engineer registered with BEM or a Corporate member of IEM who is a PE. In addition, they are required to have at least a minimum of seven (7) years of relevant practical work experience after completing an accredited or recognised engineering programme, including a minimum period of two years in responsible charge of significant engineering work. Assessment of the applicants' practical work experience shall be based on the submission of a typed written report indicating the responsible charge of significant engineering scope of work the applicant has done in his years of practice. The aim is to demonstrate the applicant's professional practice experience which should directly or indirectly comprise engineering knowledge, skills, management, leadership, and professional approach and commitment. The

documentation of this record has to be certified by a senior engineer who is his peer or another engineer who has personal knowledge of his working experience.

The definition of significant charge is based on the 'The APEC Engineer Manual', published in November 2002. The 'responsible charge of significant engineering work' is therefore defined as: -

'The definition of significant engineering work will vary between economies and disciplines. As a general guideline, the work should have required the exercise of independent engineering judgment, the programs concerned should have been substantial in duration, cost, or complexity, and the applicant should have been personally accountable for their success or failure. In general, an applicant may be taken to have been in responsible charge of significant engineering work when they have: -

a) planned, designed, coordinated and executed a small project, or
b) undertaken part of larger project based on an understanding of the whole project, or
c) undertaken novel, complex and/or multi-disciplinary work

The specified period of two years may have been completed in the course of the seven years practical experience since graduation'

9. **Completion of 2-years responsible charge of significant engineering work**

Application for APEC Engineers status requires the candidate to spend at least 2 years in responsible charge of significant engineering work. The period would be within the course of his practical experience since graduation. The assessment of his responsible charge would be based on the submission of his experience report and certified by a Professional Engineer or Member of The Institution of Engineers, Malaysia.

10. **Maintenance of Continuing Professional Development**

The Board of Engineers Malaysia has established the need for a professional engineer to participate in Continuing Professional Development (CPD) Programme with the objective to ensure lifelong learning and to provide a framework through which professional engineers could maintain a record of systematic documentation and maintenance to improve and broaden his knowledge and skill development of personal qualities for execution of professional and technical duties throughout the engineers' working life. All professional engineers with practising certificate who are registered with the Board of Engineers Malaysia would need to maintain a required number of CPD at 50 hours per year and 150 hours collected over a period of three years in order to renew their PE with PC status annually.

Details of the BEM CPD Policy is enclosed as **Attachment A.**

11. **Code of Professional Conduct and Ethics**

All professional engineers registered with Board of Engineers, Malaysia and The Institution of Engineers Malaysia are bound by the Registration of Engineers Act and the Code of Professional Conduct. The IEM Regulations on Professional Conduct could be referred in **Attachment B**

12. **Audit of APEC Engineer**

A member registered in the APEC Engineer Register may be subjected to random audit of their current curriculum vitae and records of professional development over the immediate past three year period by an assessor or assessors appointed by the National Monitoring Committee.

13. **New Amendments to the Engineers Act**

The latest "Registration of Engineers Act 1967 (Revised 2015)" came into force on 31 July 2015. The amendments resulted Malaysia liberalising the engineering services. The following can be registered with the Board of Engineers Malaysia (BEM), namely:

(1) any qualified person be registered based solely on qualifications, regardless of citizenship; and
(2) any engineering firms be registered with 100% foreign equity, so long as they meet the requirements. Section 7A (3) of Registration of Engineers Act refers.

All consulting engineering firms registered with BEM are known as Engineering Consultancy Practice (ECP). There are two categories of ECP, namely:

(1) Single Disciplinary Practice (SDP) and
(2) Multi-Disciplinary Practice (MDP)

The Act allows only Professional Engineers with Practicing Certificate (PEPC) and ECPs to submit plans or drawings to Malaysian Local Authorities. For this purpose, a registration of PEPC is introduced. In an ECP, 2/3 of the Directors must be PEPC and 70% of the shares must be held by PEPC. The day-to-day affair of the ECP shall be under the control and management of a PEPC.

Under the Act, those Professional Engineers (PE) without practicing certificate may submit plans or drawings in relation to an equipment, a plant or specialized product invented or sold by him or his employer. Section 7(3),8 (1) & 8A of Registration of Engineers Act refers. Both PE and PEPC are qualified for independant practice as explained in IEA Graduate Attributes and Professional Competencies.

There are three routes for a graduate engineer registered with the BEM to be eligible for registration as a Professional Engineers (PE), namely he :

(1) has passed the professional assessment examination (PAE) conducted by the BEM; or
(2) is a Corporate Member of IEM, or
(3) holds a professional qualification which BEM considers to be equivalent to the PAE.

A PE has to pass Professional Competency Examination (PCE) to enable him to be a registered PEPC. This permits him to form an ECP or be a director therein. PCE is an assessment to determine how conversant a PE is on all Malaysian Domestic Regulations to qualify as a Submitting Person (SP)defined by Malaysia's Road, Drainage and Building Act, 1974"

The registration of both PEs and PEs with PC is subject to annual renewal with condition that they fulfil the Continuous Professional Development (CPD)

requirements set by BEM. This aims to ensure currency of knowledge and skills. The registered person and the engineering consultancy practice are also required to comply with the Professional Code of Ethics and Conduct, as mandated by the Act, failing which they will be subject to penalties as stated in the Act.

The PCE is a test of the engineers' professional competency in engineering fundamentals as well as the understanding of Malaysia's laws and regulations, rules and standards, which are designed to ensure public's health, safety and welfare.

The amended Act will not affect the processing of applications for IPE and APEC Engineers in Malaysia. For application to become IPE and APEC Engineer, the Applicant is only required to become a PE. However, the applicants must first register with BEM as a Graduate Engineer.

14. **New Amendments to the Engineers Act – Registration of Engineering Technologists and Engineering Technicians**

Registration of Engineers Act 1967 (Revised 2015) has provided for the registration of the following persons:

1. Engineering Technologists
2. Inspector of Work

The Act recognizes the categories of Engineering Technologist and Inspector of Work (Engineering Technicians) apart from the Graduate Engineer. The scope of works for an Engineering Technologist is generally the same as the Graduate Engineer, namely *"to take up employment which requires him to perform professional engineering services" except that the technologists focus on the applied and practical application of engineering principles.* The Act also recognise that "engineering" covers a wide range of persons from engineers to technician. The Board of Engineers Malaysia can now register the unregulated "engineering technician" in the engineering industry. The scope of works of engineering technician is defined as to *"assist the Professional Engineer in the supervision of engineering works".*

The registration of Engineering Technologist and Inspector of Work (a sub-set of Technician) will not affect the application and admission procedure for the IPE and APEC Engineers registers.

PART C - DISCIPLINES OF ENGINEERING

1 General Requirement

The engineering disciplines recognised for the purpose of APEC Engineer Register are listed as :

Civil
Structural
Geotechnical
Electrical
Electronic
Mechanical
Chemical
Environmental
Aerospace
Aeronautical
Agriculture
Building Services

A point to note is this list may be expanded when the need arises. An applicant can be registered in one or more disciplines provided he meets the necessary requirement in each and every one of the discipline he is to be registered.

2. Area of Practice and Scope of Education Programme

The area of practice and the scope of education programme that the applicant must comply are listed in the IEM PI Guidelines – revised 2011 attached as per **Attachment C.**

PART D - ASSESSMENT DOCUMENTATION AND REPORT

1. General Information

The Institution of Engineers, Malaysia processes all applications for the APEC Engineer Register. The evaluation of qualifications and experiences are normally required for applicants seeking registration as APEC Engineers in Malaysia. Applicants must submit an application for Int'PE membership. He must also submit a documentation of his academic qualification as well as recognised engineering practical experience as mentioned in **Part B;** and his discipline of engineering as mentioned in **Part C** above. An application form is to be completed for this purpose.

An APEC Engineer is defined as a person who is recognised as a professional engineer within a Int'PE jurisdiction, and has satisfied an authorised body in that jurisdiction, operating in accordance with the criteria and procedures approved by an international co-ordinating committee that they have :

- Completed an accredited or recognised engineering programme; or programme recognised as equivalent; and
- Been assessed within their own jurisdiction as a professional engineer eligible for independence practice; and
- Gained a minimum of seven (7) years practical experience since graduation; and
- Spent at least two years in responsible charge of significant engineering work; and
- Maintained their continuing professional development at a satisfactory level.

In Malaysia, engineers to be eligible for admission to be an APEC Engineer must satisfy the following conditions: -

a) Have registered as a Professional Engineer under the Registration of Engineers Act; or Is a Corporate member of The Institution of Engineers, Malaysia registered with BEM as a PE; and
b) Have gained a minimum of seven (7) years practical experience since graduation; and
c) Have spent at least two (2) years in responsible charge of significant engineering work; and
d) Have maintained their Continuing Professional Development (CPD) at a satisfactory level.

It is the requirement that applicants for the Int'PE Register in Malaysia submit their curriculum vitae to show that they had two years' responsible charge of significant engineering work after graduation.

The work experience concerned must be verified by a Registered Professional Engineer or a Corporate member of IEM or an APEC Engineer or an APEC Engineer.

2. **Guidelines for Candidates**

When an applicant who is a PEng and/or MIEM wishes to be registered on the APEC Engineer Register, he would need to follow the guide as indicated in the checklist for IPE/APEC Engineer Processing and the flowchart **Attachment D and Attachment E** respectively besides completing the form. Other guides were documented in power point presentations to which regular briefing and evening talks were presented by various groups of Committee members related to the different application processes and stages.

Members registered and kept in the Register are members who have been assessed and shown to have satisfied the requirement for both being academically qualified and is practicing engineering in a discipline which he is competent and is able to act independently in his engineering practice.

3. **Route to APEC Engineer membership**

The applicant must first submit the application form supported by relevant documentation. The evidence demonstrated in the application form is then assessed to ensure applicant's eligibility for admission. The process involves checking compliance with all the requirement as indicated in the checklist mentioned in item 2. The evaluation of his documentation is done by two Committee members of the Membership

Application Board, of which one of the assessors must be in the same discipline as the applicant.

The application is then presented to two meetings namely the Application Board Meeting and Meeting of the Standing Committee on Admissions and Practical Training before submitting to the Executive Committee of the IEM Council for final approval.

The applicant is registered only after he had made payment of the membership due; and a membership number and certificate will be issued. Continuous monitoring of the progress would be through his yearly submission of the CPD points.

4. **Frequency of Assessment**

Assessment is to be carried out as and when necessary.

5. **Procedure for Assessment to Continuing Professional Development (CPD) Requirement**

The NMC will appoint two Reviewers who will have to look through the list of member picked at random and check on their CPD submission. The selected members file will be presented for review and documentation of his CPD provided. A report would be submitted after the finding is completed.

6. **Guidance for Reviewers on Process Flow**

Reviewers or members of the Assessment Panels have the flow chart on processing of applications. This basically indicates the process flow of the applications from the time the application is received at the secretariat until it is admitted/elected and approved to become the member of the Institution, a professional engineer and later applying for registration as an APEC Engineer. The flow charts are documented as

Via the IEM Process

a) Membership Processing
b) Processing for Admission (Graduate)
c) Processing for Election (Member)
d) Processing for Professional Interview
e) Processing for Professional Engineer
f) Processing IPE/APEC Engineer Application

Via the BEM Process

a) Membership Processing
b) Processing for Admission (Graduate)
c) Processing for Election (Member)
d) Processing for Professional Interview
e) Processing for Professional Engineer
f) Processing IPE/APEC Engineer Application

To facilitate the Reviewers in their evaluation, a power point process flow and requirement as well as the entire process of admission/election is documented to bring the Reviewer through the course of the application process.

PART E - REFERENCES

All document can be viewed on the website of both Board of Engineers Malaysia and The Institution of Engineers, Malaysia

i) Registration of Engineers Act 1967 (Revised 2015)
http://www.bem.org.my/v3/pdf/REA2015/REA2015.pdf
http://www.bem.org.my/v3/pdf/REA2015/REG2015.pdf
http://www.bem.org.my/v3/act_2002.html
http://www.bem.org.my/v3/regulations_2003.html

ii) Constitution and Bylaws of The Institution of Engineers, Malaysia (inclusive of amendments up to March 2013)
http://www.myiem.org.my/content/constitution_and_bylaws-47.aspx

iii) Booklet on Functions and Role of the Board of Engineers, Malaysia (LJM 000 16/95) http://www.bem.org.my/v3/aboutus.html

vi) Application for admission/transfer to the Grade of Graduate Member of The Institution of Engineers , Malaysia
http://www.myiem.org.my/content/application-62.aspx

v) Booklet on Requirements and Procedures for Registration as Graduate Engineers (LJM 00017/95)
http://www.bem.org.my/v3/app_graduate.html

vi) Booklet on Accredited Qualifications for Registration as Graduate Engineers (LJM 00018/95) http://www.eac.org.my/web/list_accredited.html

vii) Engineering Programme Accreditation Manual 2nd Edition
http://www.bem.org.my/v3/accreditation_manual.html

viii) Booklet on Engineering Qualification Assessment Procedures (LJM 000 19/95)
http://www.bem.org.my/v3/app_professional.html

ix) Application for election/transfer to the Grade of Member of The Institution of Engineers Malaysia
http://www.myiem.org.my/content/application-62.aspx

x) Booklet on Route to Professional Engineer – Guidelines (LJM 00020/95)
http://www.bem.org.my/v3/app_professional.html

xi) The IEM Professional Interview Guidelines
http://www.myiem.org.my/content/professional_interview-257.aspx

PART F - ATTACHMENTS

i)	BEM CPD Policy for Professional Engineers	Attachment A
ii)	BEM Guidelines for Code of Professional Conduct	Attachment B
iii)	IEM Regulations on Professional Conduct	Attachment B
iv)	Requirements for Specific Disciplines	Attachment C
v)	APEC Engineer/IPEA Application Checklist	Attachment D
vi)	APEC Engineer/IPEA Processing of Applications	Attachment E

Attachment A

	BOARD OF ENGINEERS MALAYSIA	CPD 2/2003

Rev. No. : 02
Date : 23.12.2004

BOARD OF ENGINEERS MALAYSIA

Continuing Professional Development Policy for Professional Engineers

1.0 INTRODUCTION

Engineering provides an ever changing spectrum of challenges and opportunities. It is extremely vital that all engineers be committed to their own Continuing Professional Development (CPD) so that they could face these challenges and at the same time take advantage of opportunities that may arise.

Broadly speaking CPD includes activities that extends and/or updates the knowledge, skill or judgement and enables to:-

- Understand and apply advances in the arts and sciences of engineering,
- Face changes in career direction,
- Be more productive,
- Better serve the public

2.0 DEFINITION

Continuing Professional Development is defined as systematic maintenance, improvement and broadening of knowledge and skill and development of personal qualities for execution of professional and technical duties throughout the engineers' working life.

3.0 OBJECTIVES

The objective of CPD for Professional Engineer is the maintenance of technical knowledge and skill (i.e. competency) to do a job. At the same time to require all engineers to stay abreast of new engineering development in their field and changes in codes and regulations.

4.0 POLICY STATEMENT

In order to achieve the above objectives, the Board of Engineers Malaysia (BEM) has developed a policy on CPD as follows:

- The CPD requirement will apply to all Professional Engineers.
- The CPD shall be an average of 50 hours per year over a three year period

- The Professional Engineer may apply to BEM for (partial/total) exemption of CPD requirement.
- Formal recognition of CPD will be provided by BEM. CPD activities will be carried out by BEM or other reputable organizations authorised by BEM
- The BEM will promote continuing education opportunities.
- The BEM will promote and endorse CPD courses offered by professional institutions, educational institutions, employers and industry.
- The BEM will encourage employers and industry in the promotion and support of CPD for their employees.
- The BEM will administer a CPD audit system – up to 10% of practising Professional Engineers will be randomly audited each year.

5.0 TYPES OF CPD ACTIVITIES

The activity to qualify as CPD must be related to the career as a professional engineer. For many engineers CPD will include management, finance, law, economics, foreign languages and others in which the professional engineer carry out his business.

Functions that are routinely performed as part of the employment are not normally claimable – for instance university lecturers/consultants cannot claim under "Presentation and Papers" the lectures/reports they present as part of their employment.

The CPD programme for Professional Engineers will comprise six major groups of activities:

a) Formal Education and Training Activities

b) Informal Learning Activities

c) Conference and Meeting

d) Presentation and Papers

e) Service activities

f) Industry Involvement (for academicians)

If a Professional Engineer believes that he is undertaking other types of CPD that comply with the general definition in Section 2.0; he should make a submission for that to be recognized.

a) Formal Education and Training Activities
(time weighted factor = 2)

These include formal face-to-face education, distance education, short courses, and formal on-the-job training. They will almost always include time spent in preparation and/or follow-up and most will involve assessment.

A special case relates to the undertaking of the entire course work for a higher degree or post graduate diploma, either by the face-to-face or distance mode. Such completion will cover the CPD requirements for the rolling three-year period containing the course.

For formal face-to-face education the time claimed can include the actual hours of lectures attended and/or research undertaken. For distance learning, the simplest approach is to estimate the equivalent number of hours of formal face-to- face education that would have been involved if this mode had been utilised instead of the distance mode.

Short courses are defined as involving presenters who are external to the workplace. They include courses at tertiary institutions that are not taken for award purposes.

b) Informal Learning Activities
(various time weighted factors)

Informal learning activities include on-the-job learning, that takes place because of workplace requirements, and private study where you can exercise complete discretion. On-the-job learning requirements usually arise when you undertake a new project and identify areas where you need to extend your competency base. Private study is an opportunity for you to direct the way in which your professional career develops.

Typical of these activities are the reading of books, journals, manuals, etc and familiarisation with the operation of technological aids, computer programs, equipment, etc.

In both cases any activity claimed must be substantiated that it contributes to the development of your career as a professional engineer. A time weighted factor of 1 applies to the on-the-job learning while a factor of 0.5 applies to private study. In both cases, the maximum number of weighted" hours that one can claim is 20 hours for each year.

c) Conference and Meeting
(time weighted factor = 1)

These include all conferences, symposiums, visits and meetings conducted by Board of Engineers Malaysia and professional institutions to provide information. Those conducted by other acknowledged experts and organizations can also be claimed provided that the content relates to the development of your professional career.

The hours claimed should be for the interactive time spent when one attended such conferences, symposiums, seminars, inspections and meetings.

d) Presentation and Papers
(various time weighted factors)

The preparation of material for courses, conferences, seminars and symposiums can be claimed if these activities contribute to the advancement of the engineering related competencies of others. A time weighting factor of 10 should be applied to the actual duration of the presentation, subject to a maximum of 30 hours per year.

e) Service activities
(time weighted factor = 1)

Service to the profession may be considered particularly where it contributes to the continuing professional development of others. This includes contributions as a member of a course accreditation team, participation in CPD audits, review of technical papers prior to publication, and the technical aspects of work undertaken for the Boards and Committees of other professional institutions, including national committees and technical societies. CPD allowable under this heading is limited to 30 hours in any one year.

f) Industry Involvement (for academician)
(time weighted factor = 1)

Engineers employed in academic positions are expected to foster links with industry for the benefit of engineering education, research and practice. This requirement also ensures that they are exposed to developments in engineering practice outside their university. Industry involvement will normally be in the form of consulting services. However, where one has close ties with industry, he can include supervision of industry-sponsored research.

Supervision of design projects carried out for industry and field trips may also be counted if they have contributed to the above objectives.

6.0 ADDITIONAL NOTES

Continuing Professional Development is for all Professional Engineers and is to be on a voluntary basis for the first two(2) years and mandatory thereafter, in which, every practicing Professional Engineer must submit his CPD records together with his application for renewal of registration with the Board of Engineers Malaysia.

Continuing Professional Development records will be checked and verified against the requirements of this Continuing Professional Development policy and the supporting documentation provided. If further clarification is needed, this information will be asked either to be forwarded to BEM, or an interview may be arranged at a mutually convenient place and time.

This verification may take the form of a certificate, list of result, record of attendance, receipt of course payment, or a written verification from the Provider responsible for the Continuing Professional Development activity.

For those whose Continuing Professional Development records are found to fail the audit, recommendations will be made as to the corrective action necessary to prevent a recurrence. Should it appear that false claims have been submitted, action will be taken under the Board's Disciplinary Regulations as a serious breach of ethics could be involved. In cases of non-compliance the following actions may result in:

- A Professional Engineer to agree to a specified course of Continuing Professional Development before renewal of registration as Professional Engineer .
- Suspension of registration as Professional Engineer until specified action have been completed.
- Eventual withdrawal of registration as Professional Engineer.
- BEM imposing any other conditions which BEM deems fit before renewal of registration is allowed.

*

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Serial No. 0017

BOARD OF ENGINEERS MALAYSIA

CIRCULAR NO. 3/2005

GUIDELINES for CODE OF PROFESSIONAL CONDUCT

1.0 A Registered Engineer shall at all times hold paramount the safety, health and welfare of the public.

1.1 A Professional Engineer shall approve and sign only those engineering documents that he has prepared or prepared under his direct supervision.

1.2 A Professional Engineer shall certify satisfactory completion of a piece of work only if he has control over the supervision of the construction or installation of that work, and only if he is satisfied that the construction or installation has fulfilled the requirements of the engineering design and specifications.

1.3 A Registered Engineer shall not reveal facts, data or information without the prior consent of the client or employer except as authorized or required by law or when withholding of such information is contrary to the safety of the public.

1.4 A Registered Engineer having knowledge of any violation of this code and Local Authorities regulations shall report thereon to appropriate professional bodies and, when relevant, also to public authorities and cooperate with the proper authorities in furnishing such information or assistance as may be required.

1.5 When the professional advice of a Professional Engineer is overruled and amended contrary to his advice, the Professional Engineer shall, if the amendment may in his opinion give rise to situation that may endanger life and/or property, notify his employer or client and such other authority as may be appropriate and explain the consequences to be expected as a result of his advice being overruled and amended.

2.0 A Registered Engineer shall undertake assignments only if he is qualified by education and experience in the specific technical fields in which he is involved.

2.1 A Professional Engineer shall not affix his signature to any plan or document dealing with subject matter in which he lacks competence, nor to any plan or document not prepared under his direction and control.

2.2 A Professional Engineer shall not accept assignment and assume responsibility for coordination of an entire project and sign and stamp (P.E. stamp) the engineering documents for the entire project unless each technical segment of the project is signed and stamped personally by the qualified engineer who has prepared the respective segment of the project.

3.0 A Registered Engineer shall issue public statements only in an objective and truthful manner.

3.1 A Registered Engineer shall be objective and truthful in professional reports, statements and testimony. He shall include all relevant and pertinent information in such reports, statements, or testimony, which should bear the date indicating when it was current.

3.2 A Registered Engineer may express publicly only technical opinions that are founded upon his competence and knowledge of the facts in the subject matter.

3.3 A Registered Engineer shall not issue statement, criticism or argument on technical matter that is inspired or paid for by interested parties, unless he has prefaced his comments by explicitly identifying the interested parties on whose behalf he is speaking and by revealing the existence of any interest he may have in the matter.

4.0 A Registered Engineer shall act for each employer or clients as faithful agent or trustee.

4.1 A Registered Engineer shall disclose all known or potential conflicts of interest that could influence or appear to influence his judgement or the quality of his services.

4.2 A Registered Engineer shall not accept compensation, financial or otherwise, from more than one party for services on the same project, or for services pertaining to the same project, unless the circumstances are fully disclosed and agreed to by all interested parties.

4.3 A Registered Engineer shall not solicit or accept financial or other valuable consideration, directly or indirectly, from outside agents in connection with the work for which he is responsible.

4.4 A Registered Engineer as advisor or director of a company or an agency shall not participate in decision with respect to particular services solicited or provided by him or his organization.

4.5 A Registered Engineer shall not solicit or accept a contract from a body or agency on which a principal or officer of his organization served as a member of that body or agency unless with knowledge and consent of that body or agency.

4.6 A Registered Engineer while acting in his professional capacity shall disclose in writing to his client of the fact if he is a director or member of or substantial share holder in or agent for any contracting or manufacturing company or firm or business or has any financial interest in any such company or firm or business, with which he deals on behalf of his client.

4.7 All professional advice shall be given in good faith.

5.0 A Registered Engineer shall conduct himself honourably, responsibly, ethically and lawfully so as to enhance the honour, reputation and usefulness of the profession.

5.1 A Registered Engineer shall not falsify his qualifications or permit misrepresentation of his or his associates' qualifications. He shall not misrepresent or exaggerate his responsibility in or for the subject matter of prior assignments. Brochures or other presentations incident to the solicitation of employment shall not misrepresent pertinent facts concerning employers, employees, associates, joint venturers, or past accomplishments.

5.2 A Registered Engineer shall not offer, give, solicit or receive, either directly or indirectly, any contribution to influence the award of a contract which may be reasonably construed as having the effect of intent to influencing the award of a contract. He shall not offer any gift or other valuable consideration in order to secure work. He shall not pay a commission, percentage or brokerage fee in order to secure work.

5.3 A Registered Engineer shall check with due diligence the accuracy of facts and data before he signs or endorses any statement or claim. He shall not sign on such documents unless, where necessary, qualifications on errors and inaccuracies have been made.

5.4 A Registered Engineer shall respond, within reasonable time, to communication from the Board or any other relevant authority on matter pertaining to his professional service.

5.5 A Registered Engineer shall not maliciously injure or attempt to maliciously injure whether directly or indirectly the professional reputation, prospect or business of another Engineer.

5.6 A Registered Engineer shall not directly or indirectly

(1) supplant or attempt to supplant another Engineer;

(2) intervene or attempt to intervene in or in connection with engineering work of any kind which to his knowledge has already been entrusted to another Engineer; or

(3) take over any work of another Engineer acting for the same client unless he has

(i) obtained a letter of release from the other Engineer or obtain such letter through the client, provided that this requirement may be waived by the Board; or

(ii) been formally notified by the client that the services of that other Engineer have been terminated in accordance with the provisions of any contract entered into between that Engineer and the client;

provided always that, in case of dispute over non-payment or quantum of any outstanding fees, the client shall request the Board to be the stakeholder under the provision of Section 4(1)(e)(ea)

5.7 Except with the prior approval of the Board, a Registered Engineer shall not be a director or executive of or substantial shareholder in or agent for any contracting or manufacturing company or firm or business related to building or engineering. If such approval is given, such Engineer shall not undertake any contract work wherein he is engaged as a consulting engineer in such project unless it is in respect of a "design and build" project.

5.8 A Registered Engineer shall not be a medium of payment made on his client's behalf unless he is so requested by his client nor shall he, in connection with work on which he is employed, place contracts or orders except with the authority of and on behalf of his client.

5.9 A Registered Engineer shall not

(1) offer to make by way of commission or any other payment for the introduction of his professional employment; or

(2) except as permitted by the Board, advertise in any manner or form in connection with his profession.

5.10 A Professional Engineer in private practice shall not without the approval of the Board enter into professional partnership with any person other than a Professional Engineer in private practice, a Registered Architect, a Registered Quantity Surveyor or a licensed Land Surveyor.

Dated: 3 February 2005

[BEM-241st Meeting / 28th June 2004]

TAN SRI DATO' Ir. Hj. ZAINI BIN OMAR
President
Board of Engineers Malaysia

Attachment B

THE INSTITUTION OF ENGINEERS, MALAYSIA

REGULATIONS ON PROFESSIONAL CONDUCT

NOTE:

A Code of Professional Conduct designed to cover all eventualities must necessarily be written in general terms expressing broad ethical principles. Almost every case of doubt as to the proper course of action required to conform to the Code of Professional Conduct arises from a conflict between a member's personal interest and his duty to others.

Regulations issued by the Council to interpret the Code indicate the manner in which members are required to conduct themselves in a number of situations that are frequently encountered. In other situations, members are required to order their conduct in accordance with the principle that, in any conflict between a member's personal interest and fair and honest dealing with other members of the community, his duty to the community must prevail.

A. The following Regulations on Professional Conduct are made by the Council under Section IX of the Bylaws. In these regulations 'member' means a member of any grade referred to in Section II of the Bylaws, and 'employer' includes 'client'.

B. (1) A member shall at all times take care to ensure that his work and the products of his work constitute no avoidable danger of death or injury or ill health to any person.

(2) A member shall take all reasonable steps to avoid waste of natural resources, damage of the environment, and wasteful damage or destruction of the products of human skill and industry.

(3) A member shall take all reasonable steps to maintain and develop his professional competence by attention to new developments in science and engineering relevant to his field of professional activity and, if he is an employer, shall encourage his professional employees to do likeness.

(4) A member shall not undertake responsibility as professional engineer which he does not believe himself competent to discharge.

(5) A member shall accept personal responsibility for all work done by him or under his supervision or direction, and shall take all reasonable steps to ensure that persons working under his authority are competent to carry out the tasks assigned to them and that they accept personal responsibility for work done under the authority delegated to them.

(6) A member called upon to give an opinion in his professional capacity shall, to the best of his ability, give an opinion that is objective and reliable.

(7) A member whose professional advice is not accepted shall take all reasonable steps to ensure that the person overruling or neglecting his advice is aware of any danger which the member believes may result from overruling or neglect.

(8) A member shall not make any public statement in his capacity as a professional engineer without ensuring that his qualification to make such a statement and any association he may have with any party which may benefit from his statement are made known to the person or persons to whom it is directed.

(9) A member shall not, in self-laudatory language or in any manner derogatory to the dignity of the profession advertise or write articles for publication, nor shall he authorise any such advertisement or article to be written or published by any other person.

(10) A member shall not recklessly or maliciously injure or attempt to injure, whether directly or indirectly, the professional reputation, prospects or business of another engineer.

(11) A member shall inform his employer in writing of any conflict between his personal interest and faithful service to his employer.

(12) A member shall not improperly disclose any information concerning the business of his employer or of any past employer.

(13) A member shall not accept remuneration in connection with professional services rendered to his employer other than from his employer or with his employer's consent; nor shall he receive directly or indirectly any royalty, gratuity or commission on any article or process used in or for the purposes of the work in respect of which he is employed unless or until such royalty, gratuity or commission has been authorised in writing by his employer.

(14) A member shall not improperly solicit work as an independent advise or consultant, either directly or by an agent, nor shall he pay any person, by commission or otherwise, for the introduction of such work.

(15) A member acting as an independent adviser or consultant shall not be the medium of payment made on his employer's behalf unless so requested by his employer; nor shall he place contracts or orders in connection with work on which he is employed, except with the authority of and on behalf of his employer.

III. REQUIREMENTS FOR SPECIFIC DISCIPLINES

(A) CHEMICAL

TRAINING REQUIREMENTS

a) A potential candidate is expected to have knowledge/ experience in areas related to the Chemical Engineering.

b) The candidate is expected to possess and apply Chemical Engineering knowledge including but not limited to Transfer Processes, Unit Operations, Reaction Engineering, Thermodynamics, Control and Instrumentation and Process economics and Costing.

DESIGN EXPERIENCE

The candidate is expected to have experience in the process and engineering design, fabrication requirements, material selection and erection requirements of process plant units which may include the preparation of process flow sheets showing heat and mass balances;

FIELD EXPERIENCE

The candidate is expected to have some experience in the start-up and commissioning and operation and/or testing and evaluation studies, trouble-shooting, performance enhancement and maintenance and planning coordination of chemical plants and items of equipment.

OFFICE/MANAGEMENT EXPERIENCE

The candidate is expected to have experience in the office or management of projects. This may be in the form of general engineering management which may include Marketing of Engineering Products and Services; Projects; Contracts; R&D; Quality; Technical Services; and Health, Safety and the Environmental aspects of Chemical Engineering Operations including related regulations and legislation control.

DOCUMENTATION REQUIREMENTS

The candidate is expected, where appropriate, to submit drawings and calculations for the design and selection, in whole or in part, or an item of work relating to Chemical or Process Engineering e.g. heat exchangers; absorption towers; distillation plant; liquor filters; gas dedusting equipment; plant layouts. A candidate may also submit notes or reports on performance test and feasibility studies.

(B) CIVIL

TRAINING REQUIREMENTS

a) The candidate should have sufficient site experience expected of an engineer, who has spent a ***minimum aggregate of twelve (12) months at site***.

b) The candidate should have sufficient design office experience expected of an engineer, who has spent a ***minimum aggregate of twelve (12) months*** in the design office. The candidate should be able to demonstrate that he is thoroughly conversant with engineering design and he should have sufficient maturity to understand his own limitations. The candidate should also be able to indicate to the interviewers, his ability to develop himself further in his profession.

c) A candidate should be able to demonstrate a high degree of proficiency in the analysis and detailing of structural elements. The candidate who is involved in civil engineering infrastructural works should have sufficient broad experience in earthworks, drainage, water reticulation, sewerage and road works. The candidate who has involved principally in large civil engineering works such as dam, water treatment must be able to demonstrate in depth knowledge in the particular field of works and at least understanding of the other areas. Design Coordination or Project Monitoring of the design or site works will not be considered.

d) THE CANDIDATE SHOULD SHOW EVIDENCE OF HAVING ADEQUATE KNOWLEDGE IN THE ADMINISTRATION OF CONSTRUCTION CONTRACTS, TENDERS AND LEGISLATION RELEVANT TO CIVIL ENGINEERING PROFESSION IN PARTICULAR, AND THE CONSTRUCTION INDUSTRY IN GENERAL SUCH AS UNIFORM BUILDING BYLAWS, REGISTRATION OF ENGINEERS ACT, THE STREET DRAINAGE AND BUILDING ACT.

DOCUMENTATION REQUIREMENTS

On top of the above requirements, civil engineering candidates in specialized fields may submit their documents as follows:

(B1) Highway & Transportation:

- Drawings, calculations and quantities to show adequate knowledge of the practical of the theory of civil engineering design in relation to highway engineering, e.g. geometric design; interchange design; bridge design; retaining walls; earthworks; pavement; drainage; road furniture

  and

- **NOTES OR RECORDS ON HIGHWAY CAPACITY STANDARDS IN RELATION TO ESTIMATED TRAFFIC VOLUMES IN PARTICULAR REFERENCE TO INTERCHANGE/JUNCTION LAYOUT; HIGHWAY MATERIAL AND PAVEMENT DESIGN; ROAD LOCATION IN URBAN OR RURAL AREAS.**

(B2) Tunnelling and Underground Space:

- Drawings and calculations for the detailed design tunnels involving soil and rock mechanics such as the stability and deformation of the tunnel and underground space structures, underground caverns, and cut & cover structures.

  and

- **NOTES AND RECORDS FROM SITE INVESTIGATION; FIELD AND LABORATORY TESTS; TRIAL SECTIONS, ETC FOR THE PURPOSE OF THE FOREGOING**

(B3) Water Resources:

- River basin study, prefeasibility or feasibility study of water resources development, computer modelling or water resources system, flood and drought forecasting, etc.
  or
- Drawings and calculations and quantities for the design of an item of work related to hydrology.
  or
- Record of fieldwork in hydrology, surface and groundwater hydrology, and water resources evaluation.

(C) ELCTRICAL, ELECTRONICS AND COMMUNICATION

(C1) ELECTRICAL

TRAINING REQUIREMENTS

***A*) GENERAL**

A candidate is expected to have knowledge and experience in the design, installation, operation and/or maintenance of electrical installation or system with a voltage of at least 400V, three phase and operating current of at least 300A. He is expected to have sound electrical engineering knowledge and the ability to use such knowledge to solve electrical engineering problems that can arise in the course of his work. He is expected to be familiar with rules and regulations relating to the electricity industry, particularly those affecting his work. The candidate is expected to have sufficient exposure to medium voltage (1kV up to 33 kV).

B) DESIGN EXPERIENCE

The candidate is expected to have some experience in design of electrical system, installation, plant or equipment, which may include alteration or modification works. He shall be familiar with basic design principles and shall have a working knowledge of electrical distribution, protection, safety and the rules and regulations that govern them for *a **minimum of one year*** covering the following areas.

(i) Acts and regulations
(ii) Technical standards and their optimal applications and good engineering practices
(iii) Assessment of load characteristics (demands, power quality, EMC, earthing, etc) of electrical systems.
(iv) Safety and health against electrical hazards – direct and in – direct or secondary.
(v) Characteristics and particulars of low voltage and high voltage system up to 11 kV
(vi) Protection and fault discriminations – electric shock, over current, arc flash and Short circuit.
(vii) Design and/or specifying and sizing electrical systems / components optimally – effective efficient, maintainable and cost optimized.
(viii) Electrical installations of buildings to MS IEC 60364 or equivalent standards)

c) FIELD EXPERIENCE

The candidate is expected to have some experience in the supervision, installation, operation or maintenance of an electrical system, installation, plant or equipment and is expected to have good working knowledge of such system, installation, plant or equipment and the rules and regulations governing their installation, operation or maintenance for a ***minimum of six months*** in the following areas.

(i) Acts and regulations, technical standards
(ii) Comply with safety and health practices
Comply with electrical installations of buildings to MS IEC 60364 or equivalent standards, code of practices and good engineering practices
(iii) Application of design experience to modification and upgrading works.)

d) OFFICE/MANAGEMENT EXPERIENCE

The candidate is expected to have some experience in the office or the management of projects/works. This may include feasibility studies, costing, budgeting, tendering, contract administration etc.

DOCUMENTATION REQUIREMENTS

a) Drawings, charts, calculations, citations, compliance with Acts and regulations, and applications of standards and design rules for the design, installation, construction or operation in whole or part of a system or an item of work related to electrical engineering, and

b) Notes or records on the installation, testing, commissioning, operation and maintenance of the system, plant or equipment, or other related document(s).

(C2) Electronic and Communication

TRAINING REQUIREMENTS

a) A potential candidate is expected to have experience in the areas such as Telecommunication, Broadcasting, Multimedia Communication, IT, Information Communication Technology (ICT), Computers (Software & Hardware), Information Systems, Avionics & Aeronautics (Electronics related), Electronic Component Manufacture, Building Automation, Biomedical, Microelectronics, Mechatronics

Note: Software development, field, system, computational and parametric studies, system configuration development and planning, and control & instrumentation covering electronics would fall under this category.

b) The candidate is expected to have basic knowledge of Electrical power 400V.

DESIGN EXPERIENCE

The candidate is expected to have experience in the design of electronic and communication system which may include alteration or modification works for a ***minimum of six months***.

FIELD EXPERIENCE

The candidate is expected to have some experience in the supervision, installation, operation or maintenance of an electronic/communication system and is expected to have knowledge of the rules and regulations governing their installation, operation or maintenance for a ***minimum of twelve months***.

Office/Management Experience

The candidate is expected to have experience in the office or management of projects/works. This may include feasibility studies, costing, budgeting, tendering, contract administration etc.

DOCUMENTATION REQUIREMENTS

a) The candidate is expected to submit drawings, charts, calculations for the design, analysis, installation, testing, commissioning of an item of work.

b) The candidate should include evidence showing experience in management. This may include project work such as operation, maintenance, testing of equipment or system related to the relevant field of work.

(D) MECHANICAL

TRAINING REQUIREMENTS

a) A potential candidate is required to have experience in general mechanical engineering or relevant fields listed as ***Appendix 1***.

b) The candidate is expected to have sound knowledge of mechanical engineering practice. Evidence should be provided as in (a) and (b) below.

DESIGN EXPERIENCE

The candidate is expected to have sufficient experience in the design of mechanical components, equipment or a system. The design may include alterations, addition or modifications to existing plant and equipment. The design experience shall be a ***minimum of six months***.

FIELD EXPERIENCE

THE CANDIDATE IS EXPECTED TO HAVE SUFFICIENT WORKSHOP/SITE EXPERIENCE IN THE SUPERVISION, FABRICATION, INSTALLATION, COMMISSIONING, OPERATION AND MAINTENANCE OF MECHANICAL ENGINEERING WORKS AND/OR OTHER RELATED WORKS AND FAMILIAR WITH ALL REGULATIONS AND CODES GOVERNING SAFE PRACTICE. THE FIELD EXPERIENCE SHALL BE A MINIMUM OF ONE YEAR.

OFFICE/MANAGEMENT EXPERIENCE

The candidate is expected to have some experience in the office or the management of projects/works. This may include feasibility studies, costing, budgeting, tendering, contract administration etc.

The candidate shall have not less than three years' experience in the above areas.

DOCUMENTATION REQUIREMENTS

a) *The candidate is expected to submit relevant drawings, calculations, charts, notes and records for the design, analysis, installation, testing and commissioning of an item of work in the relevant field of work for which the candidate was fully responsible.*

b) The candidate should include evidence showing experience in management. This may include project work such as operation, maintenance, testing of equipment or system related to the field of work.

(D1) Aeronautical

a) Where appropriate, drawings and calculations for the design of part of an aircraft or guided missile, or the estimation of the performance of its engines or its structure, maintenance schedules for commercial airlines or the armed services;

and

b) Notes or records, such as wind tunnel tests on models of aircraft or on parts thereof; flights trials; strength tests on wings or other components; vibration and stiffness tests; methods of construction and joining parts.

(D2) Industrial Engineering

a) Drawings, models and calculations to show adequate practical application of Industrial Engineering in the design of systems for:- material handling, work methods organisation and Ergonomic, Information Resources Management, Manufacturing Planning, Inventory Control and Quality Systems Documentations.

and

b) Notes or records on the performance of above systems to help achieve strategic operational objectives, operational flexibility, cost reduction, added value or quality improvement.

(D3) Marine

a) Where appropriate, drawings and calculations for the design in whole or in part, of an item of work related to Marine engineering, such as: steam or internal combustion propulsion, or auxiliary machinery, such as electrical generating sets;

and

b) Notes or records, such as operation or testing of one or more of the foregoing.

(D4) Naval Architecture and Shipbuilding

a) Drawing and calculations for an item of work relating to: a design study of a modern ship; the launching of a large ship; a typical ship's system, eg. oil fuel, ballast, fresh and salt water, ventilation and airconditioning; cargo handling.

and

b) Notes or records such as: estimate of ship performance including model tests and propeller design; trials at sea; eg propulsive performance; sea keeping; vibration; planning, production and quality control applied to ship building.

Appendix 1 - Mechanical

1. General mechanical engineering
2. Measuring and precision engineering
3. Agricultural machinery and equipment
4. Building services engineering
5. Material engineering
6. Facilities and plant engineering
7. Mechatronics and robotics
8. Automation and production
9. Industrial and manufacturing engineering
10. Aeronautical and aerospace
11. Marine and naval architecture
12. Mining and quarrying machinery and equipment
13. Welding and fabrication
14. Micro electromechanical systems
15. Acoustics and vibrations
16. Safety engineering
17. Energy engineering/management
18. Oil and gas engineering
19. Environmental engineering
    - thermal
    - sound
    - Internal air quality
20. Piping and pumping
21. Unfired and fired pressure vessels
22. Tribology and lubrication engineering
23. Fire engineering
24. Vertical/horizontal transport machinery
25. Air conditioning/ Heating and refrigeration
26. Biomedical engineering
27. Automotive engineering
28. Land Transportation

Attachment D

APEC ENGINEER/ IPEA APPLICATION CHECKLIST

Name :

Discipline :

Date received :

Check List:

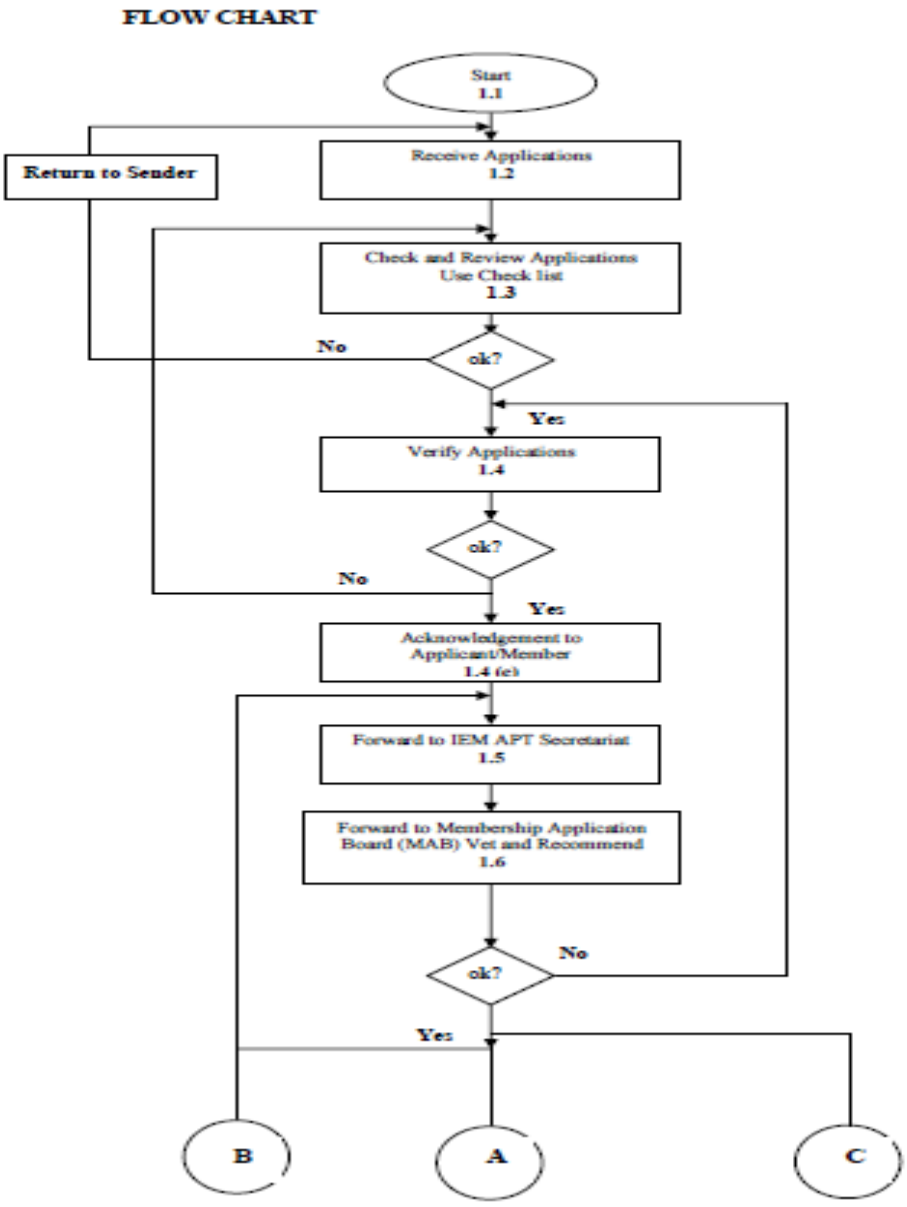
- ☐ Acknowledge receipt of the application form via email
- ☐ Check Status, MIEM and P.Eng and membership numbers and active member or not
- ☐ Check Membership information – transfer/election and year
- ☐ Check Membership No and Discipline/Branch of Engineering
- ☐ Check photo
- ☐ Check Discipline or Branch of Engineering applied and to tally with membership discipline
- ☐ Check signature on verification of experience by P.Eng and MIEM (at least one on each page), ***or***
- ☐ Initial made on Verification column
- ☐ Check Experience is 7 years and 2 years in responsible position
- ☐ Check record of total months in the experience record section
- ☐ Check signature on application form and date
- ☐ Check CPD submission for consecutive 3 years (no verification signature required)
- ☐ Use Processing form - to type in the information and sign the form
- ☐ Submit to APT Secretariat Staff to send for admission

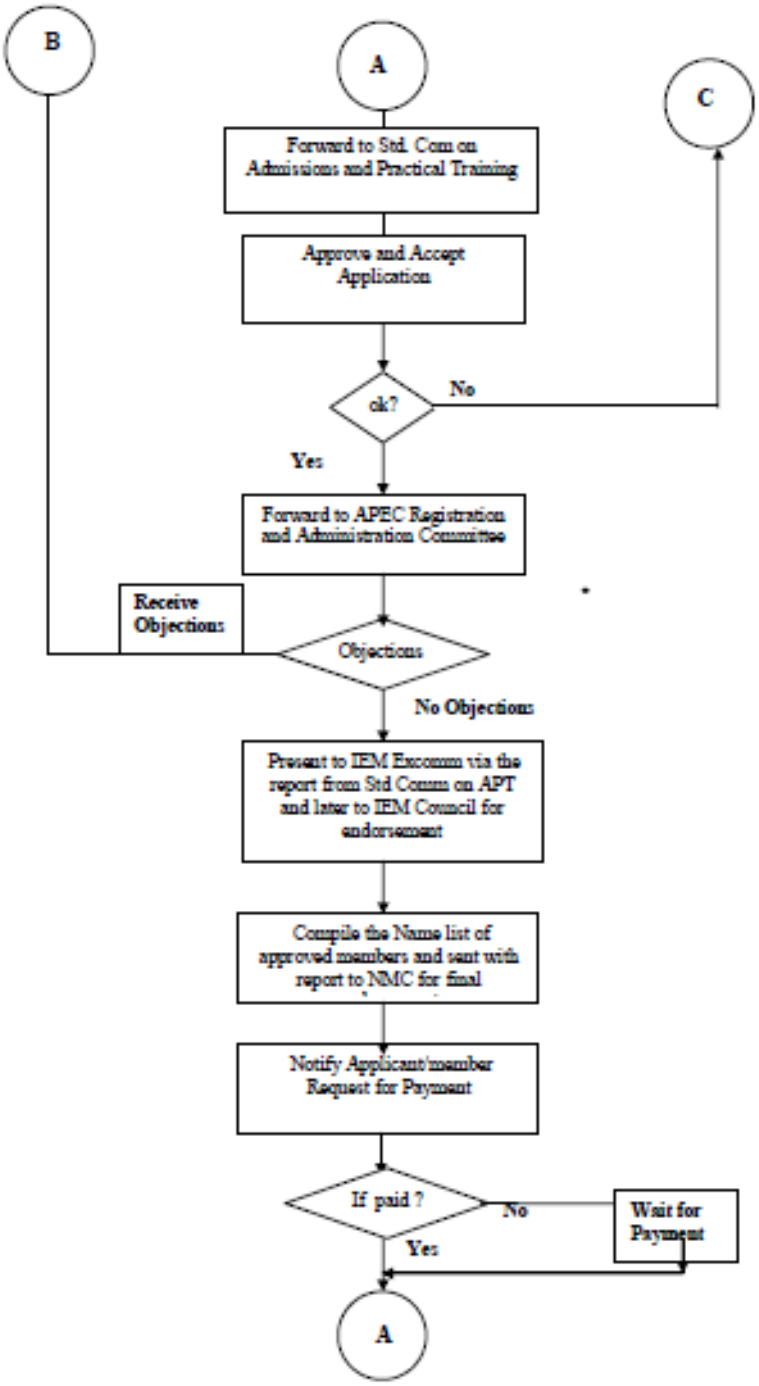
Others

- ☐ Check payment – amount and manner of payment
- ☐ Process payment – cheque forward to finance to issue receipt
  Credit card entry details into the credit card format and forward to EDP Executive to process Payment
- ☐ Monitor payment and enter records into the processing form and also into application form
- ☐ Check signatures of membership application board to ensure 2 signatures in approved cases
- ☐ Entry details of endorsement into Processing Form and get signature of Chairman after Registration and Administration meeting
- ☐ File checklist into P file

Attachment E

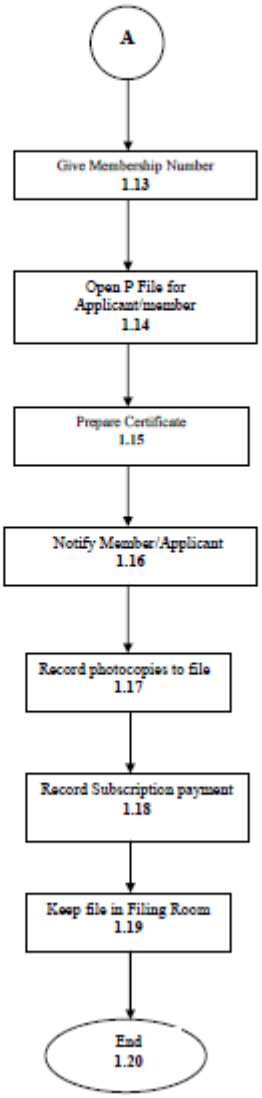
APEC ENGINEER/IPEA PROCESSING OF APPLICATIONS




B
A
C
Forward to Std. Com on Admissions and Practical Training
Approve and Accept Application
ok?
No
Yes
Forward to APEC Registration and Administration Committee
Receive Objections
Objections
No Objections
Present to IEM Excomm via the report from Std Comm on APT and later to IEM Council for endorsement
Compile the Name list of approved members and sent with report to NMC for final
Notify Applicant\member Request for Payment
If paid ?
No
Wait for Payment
Yes
A

2

APEC ENGINEER/IPEA PROCESSING OF APPLICATIONS



1.0	**DETAILS**		
1.1	***Start***		**ACTION**
1.2	***Receive Applications***		
	Receive application forms from IEM		**APEC**
1.3	***Check and Review Applications***		
	a)	Check to ensure that all documents are submitted in accordance with requirements stated in the checklist for APEC Engineer/IPEA application. If all are in order, proceed to 1.4.	**IPEA**
	b)	For applications that do not satisfy criteria or do not have relevant documents, prepare letters to request for more details. Forward letters to GM for signature.	**IPEA**
	c)	Check and sign letters to notify applicant/member who do not satisfy the criteria and send either by post or email. Post or email scanned copy of the letter to applicant. File all correspondences with application	**IPEA**
	d)	Keep in pending file in cupboard. Refer back to 1.2	**IPEA**
	e)	Verify with IEM database to ensure that the applicants/members do not have any arrears in subscription (Arrears amount to be included in letter if any)	**IPEA**
	f)	Prepare processing form for application that satisfy all criteria for APEC Engineer/IPEA	**IPEA**
	g)	Application that is in order will be processed and presented at the earliest Admission Sub Committee meeting.	**IPEA**
	h)	Prepare the list of candidates for recording on status	**IPEA**
1.4	***Verify Applications***		
	a)	Verify and check to ensure that supporting documents are in order as per the checklist.	**IPEA**
	b)	Check the request for discipline or branch of engineering tally with that registered with the IEM and BEM	**IPEA**

	c)	Check the description of experience and period of practical training since graduation to ensure that it satisfies the criteria for APEC Engineer/IPEA ie *7 years of experience with 2 years in a responsible position.* Return application if do not comply . Refer back to 1.2	**IPEA**
	d)	Check on availability of signatures or initial by Verifier. Check all processing as per Checklist	**IPEA**
	e)	Send acknowledgement to applicant/member	**IPEA**
1.5	***Forward to Admission Sub Committee***		
	a)	Sign the processing forms and if in order, forward to Secretariat of APT to prepare for meeting	**IPEA**
	b)	Obtain signature from Secretariat of APT as acknowledgement and verification of info provided.	**IPEA**
1.6	***Forward to Admission Sub Committee***		
	a)	Forward to two Committee Members of the Admission Sub Committee for vetting	**APT**
	b)	Vet through processed applications to verify that processing was done in accordance with the criteria for application to be admitted as APEC Engineer/IPEA. Two Committee members of MAB to sign on the processing forms, one of whom should be in the same or related discipline as the applicant.	**APT**
	b)	Forward recommended list of applicant to APT for approval.	**APT**
	c)	Applications not approved by MAB would be returned to APEC Engineer Secretariat for action as per 1.3 (b).	**APT**
	d)	Revise the list of applicants by removing the names of those not approved and present recommended applications to APT.	**APT**
1.7	***Forward to Standing Committee on Admissions and Practical Training***		
	a)	Vet through applications recommended by MAB.	**APT**
	b)	Forward recommended list to Excomm for notification	**APT**

1.8 ***Approve and Accept Applicant***

a)	Return application where more information is required to APEC Engineer Secretariat for appropriate action to be taken and to reply to applicant/member.	**APT**
b)	For applications that do not satisfy criteria or do not have relevant documents, prepare letters to request for more details. Forward letters to GM for signature. Refer to 1.3b	**IPEA**
c)	Keep in pending file in cupboard. Refer back to 1.2	**IPEA**

1.9 ***Forward to APEC Engineer Registration and Administration Committee***

a)	Receive the application duly endorsed by APT	**IPEA**
b)	Check to ensure all signatures of MAB and details provided	**IPEA**

1.10 ***Notify Applicants/members***

a)	Prepare letter to request for payment of subscription and to inform on the approval for registration as APEC Engineer/IPEA	**IPEA**
b)	Check letter to ensure accuracy of information such as date of approval, discipline of engineering and the amount of fees payable before forwarding to Chairman of Registration and Administration for signature.	**IPEA**
c)	Receive signed letters and photocopy two copies of the letters (one yellow and one white). File white copy with the application and keep in the waiting for payment file	**IPEA**
d)	Email scanned copy of original letter to applicant/member. Send original and yellow copy.	**IPEA**
e)	Wait for Payment	**IPEA**
f)	If applicant had paid the required fees. Keep the original letter requesting for fee and the white copy with the applicant's/member's application. Do not need to send letter request for fee	**IPEA**

1.11 ***Forward to Finance***

a)	Forward cheque of payment to Finance Department for issue of receipt	**IPEA**

	b)	Tabulate the credit card number with information and forward to Membership Department/EDP for credit transfer	**IPEA**
	c)	Forward credit card details to bank and info finance of clearance	**EDP**
	d)	Issue of Receipt for cheques and upon request by EDP	**FIN**
	e)	Info payment and provide receipt numbers	**FIN**
1.12	***Make Entry in Professing Fee***		
	a)	Enter record into processing form	**IPEA**
	b)	Entry into database	**IPEA**
	c)	Document record for tracking	**IPEA**
1.13	***Give Membership Number***		
	a)	Allocate Membership number	**IPEA**
	b)	Enter information into the website and data	**IPEA**
	c)	Enter personal information into Database	**IPEA**
	d)	Update discipline information into database for total number of record disciplines	**IPEA**
1.14	***Open P File***		
	a)	Open personal file for members	**IPEA**
	b)	Enter membership number and all application information	**IPEA**
1.15	***Prepare Certificates***		
	a)	Prepare two certificates – for APEC Engineer and IPEC	**IPEA**
	b)	Ensure the two certificates are sealed and stamped	**IPEA**
	c)	Check certificates to ensure that the membership number, date of approval and discipline are correct before sending to Chairman of Registration and Administration for signature	**IPEA**
	d)	Forward certificate to the IEM President for signature	**IPEA**

e) Prepare notification letter to applicant/member to inform of membership number and to collect certificate **IPEA**

f) Check letter to ensure accuracy of information such as receipt number, discipline of engineering and the membership number before forwarding to Chairman of Registration and Administration for signature. **IPEA**

1.16 ***Notify Applicants/members***

a) Receive signed letters and photocopy a copy of the letter (one and keep in the P file **IPEA**

b) Email scanned copy of original letter to applicant/member. Send original or call member to come to collect the certificate. **IPEA**

1.17 ***Record photocopies into P Files***

a) Keep photocopies of letter and certificates into the p file **IPEA**

1.18 ***Record subscription payment***

a) Record subscription payment into database **IPEA**

b) Record subscription payment on p file cover **IPEA**

c) Subscription collection record is to be updated when payment received both in the p file and in the database. **IPEA**

1.19 ***Keep file into Filing Room***

a) Keep file into the filing cabinet in according to membership number **IPEA**

1.20 ***End***

Attachment F

Procedure on Application To Register.pdf

Attachment G

Procedure on Professional Assessment Examination.pdf