

## **Important Notes:-**

**The class of Graduate Member of the HKIE now includes persons who have obtained an accredited/recognized higher diploma, higher certificate, associate degree or an acceptable equivalent in a recognized engineering or technological discipline. However, applicants who are eligible to register as Engineering Graduate Training Scheme ‘A’ trainees include only “Graduate Members of the HKIE who also meet the academic requirements for Member in a Discipline.”**

**In this booklet, any reference to the term “graduates”, “graduate trainees”, “Engineering Graduate Training Scheme ‘A’ trainees”, or “Graduate Members” or the like are referring to those “Graduate Members of the HKIE who meet the academic requirements for Member in a Discipline.”**

## **M3 ROUTES TO MEMBERSHIP**

**Section 1 Introduction**

**Section 2 Academic Requirements**

**Section 3 I Training and Experience Requirements**

**II Continuing Professional Development (CPD) Requirements  
and Guidelines**

**Section 4 Professional Assessment**

**Section 5 Mature Candidate Requirements**

**Section 6 Resit of Professional Assessment**

(Where the masculine gender is used in the text, it is intended that this should embrace both the masculine and feminine genders)

## **SECTION 1      INTRODUCTION**

### **1.      Definition of a Professional Engineer**

The following definition of a professional engineer used by the Conference of Engineering Societies of Western Europe and the United States of America (EUSEC) was adopted by the HKIE for the class of Member.

"A professional engineer is competent by virtue of his fundamental education and training to apply the scientific method and outlook to the analysis and solution of engineering problems. He is able to assume personal responsibility for the development and application of engineering science and knowledge, notably in research, designing, construction, manufacturing, superintending, managing and in the education of other engineers. His work is predominantly intellectual and varied, and not of a routine mental or physical character. It requires the exercise of original thought and judgement and the ability to supervise the technical and administrative work of others.

"His education will have been such as to make him capable of closely and continuously following progress in his branch of engineering science by consulting newly published works on a world-wide basis, assimilating such information and applying it independently. He is thus placed in a position to make contributions to the development of engineering science or its applications.

"His education and training will have been such that he will have acquired a broad and general appreciation of the engineering sciences as well as a thorough insight into the special features of his own branch of engineering. In due time he will be able to give authoritative technical advice and to assume responsibility for the direction of important tasks in his branch."

### **2.      Routes to Membership**

The HKIE is a qualifying body for 21 disciplines currently: Aircraft; Biomedical; Building; Building Services; Chemical; Civil; Control, Automation & Instrumentation; Electrical; Electronics; Environmental; Energy, Fire; Gas; Geotechnical; Information; Logistics & Transportation; Manufacturing & Industrial; Marine & Naval Architecture; Materials; Mechanical and Structural.

Membership of a discipline is by assessment or recognition of a relevant professional qualification only.

To be a Member of the HKIE, a candidate needs to satisfy the education, training and responsible experience requirements. This booklet explains in detail the requirements of each.

There are three routes to Membership:

1. Formal Training Route (Engineering Graduate Training Scheme 'A')
2. General Experience Route
3. Mature Route

For the Formal Training and General Experience Routes, candidates must

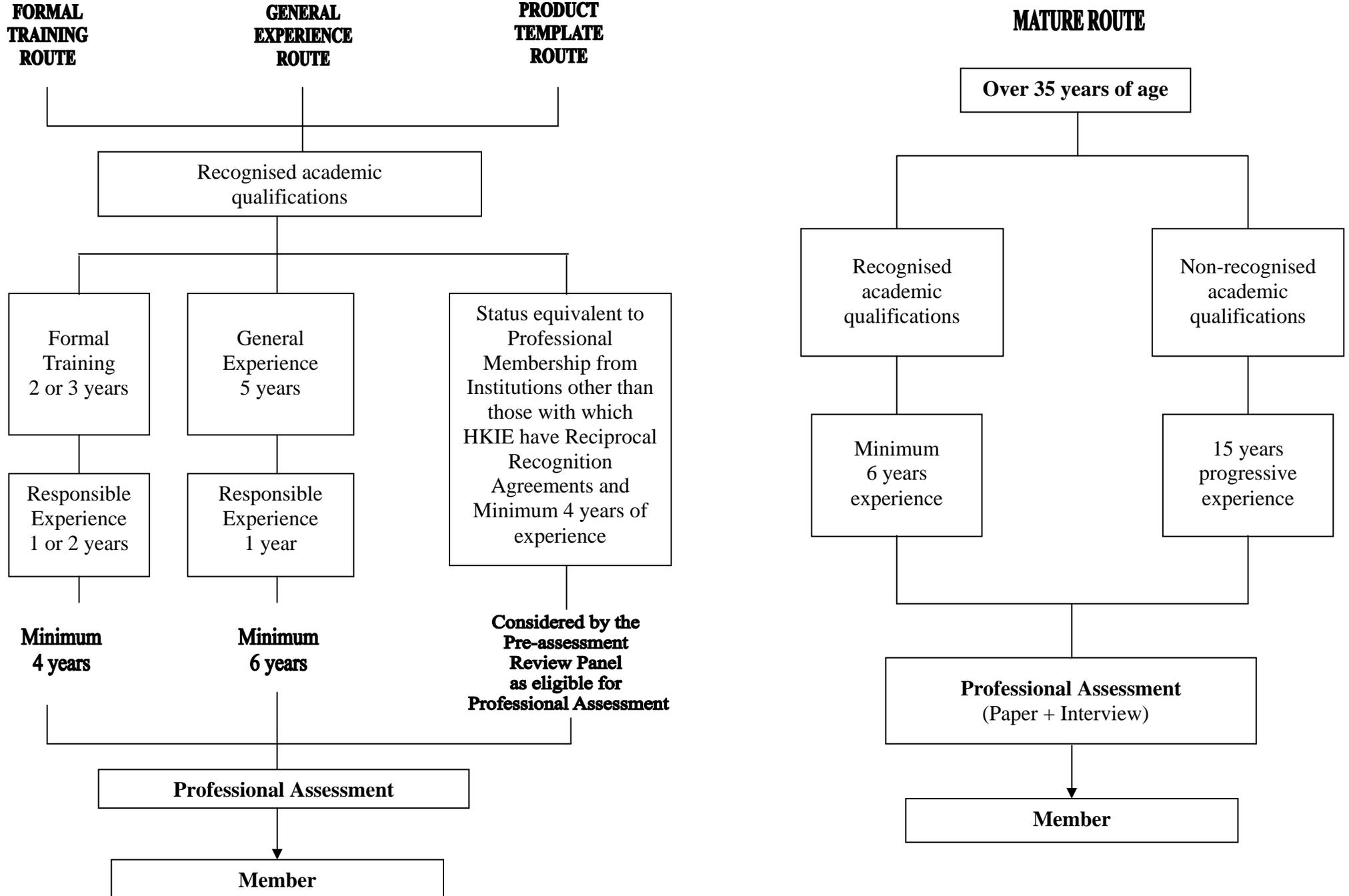
- (a) have attained the age of 25;
- (b) have obtained an accredited honours degree or an acceptable equivalent in a recognised engineering or technological discipline;
- (c) have received adequate training; and
- (d) have received sufficient responsible experience.

Under the Formal Training Route, candidates are required to have two years of pre-approved formal training followed by two years of responsible experience for all disciplines except Civil, Structural, Environmental and Geotechnical disciplines. These four disciplines require three years of pre-approved formal training followed by one year of responsible experience.

Under the General Experience Route, candidates who have not undertaken pre-approved training are required to have a minimum of five years of general experience followed by one year of responsible experience; a total of six years relevant working experience after graduation. Details are included in Section 3.

Candidates over 35 years of age can be assessed via the Mature Route. There are generally two categories under this route: with recognised academic qualifications or without recognised academic qualifications. Details are included in Section 5.

# ROUTES TO MEMBERSHIP



## **SECTION 2          ACADEMIC REQUIREMENTS**

Academic qualifications that meet the requirements of the Institution for Member are:

- (i) a first degree (Honours) accredited by the Institution; or
- (ii) an accredited first degree as listed in the Washington Accord; or

Other Honours degree level qualifications in engineering or technology or combinations of academic qualifications may be considered for the class of Member based on an individual assessment. Candidates are required to complete Form 1/AQ. Examples of academic qualifications which should be submitted for individual assessment include:

- first degrees from courses which have been subsequently accredited.
- non-recognised first degrees in engineering or science 'topped-up' with a Master's or Doctorate degree in a relevant topic.
- higher diplomas 'topped-up' with a Master's degree.
- open university style degrees.
- other combinations of academic qualifications, which taken together appear to be of substance.

Candidates are required to demonstrate their academic achievements by:

- presentation of their degree certificates together with course transcripts; or
- proof of having had their academic qualifications assessed by an appropriate authority, such as the Engineering Council, UK.

Other qualifications, such as passes in Engineering Council (UK) Part II Examinations including the "Engineer in Society", ie. Part II (A), (B) and (C) up to and including year 2001 and passes in the Engineering Council Postgraduate Diploma in and after year 2002 up to and including 2012 may be acceptable for the class of Member by respective Disciplines on an individual basis.

All documents have to be certified 'true copies' of the originals. Verification by a Corporate Member is acceptable.

## **SECTION 3          TRAINING AND EXPERIENCE REQUIREMENTS**

### **CONTINUING PROFESSIONAL DEVELOPMENT (CPD) REQUIREMENT AND GUIDELINES**

#### **I          TRAINING AND EXPERIENCE REQUIREMENTS**

##### **1.          Training Principles**

Training is an essential element in the development of a professional engineer whose excellence is reflected in the quality of work produced. It is a period of acquiring knowledge, skills and attitudes of a practical nature which can be learned only in an industrial or commercial environment, and are complementary to those acquired during a degree course or equivalent.

The training is aimed at developing the technical and managerial abilities of the young engineer so that in later life he will be better able to undertake engineering projects as a professional engineer with due regard to technical, economic, financial, environmental, social and other relevant factors.

After a period of induction training the candidate is required to obtain a broad and sound knowledge of engineering practice relevant to the branch of engineering to which he aspires. The overall objective is that the candidate should develop a flexible attitude so that he can meet the challenge of rapidly changing technology in his particular branch of engineering.

By the end of his training the candidate should have acquired a clear understanding of:

- the importance of adhering to the Institution's Rules of Conduct and their meaning in relation to his everyday work;
- the need to make appropriate provision in every engineering project to ensure safety, reliability and environmental acceptability;
- his responsibilities to his employer, his colleagues, other engineers and the community at large;
- the importance and relevance of his theoretical knowledge to the design, manufacture, construction, operation and maintenance of the particular products or services with which the employing organisation is concerned;
- the general problems affecting an industrial organisation, such as:
  - financial, economic, commercial and statutory limitations;
  - limitations imposed by men, machines and materials available;
  - operation and maintenance requirements that may affect engineering decisions;
- the vital importance of good industrial and commercial relations;
- the need to understand the point of view of others and to promote good personal relationships at all levels within an organisation;
- the importance of communication, and of being able to discuss interrelated problems with members in other branches of engineering and to familiarize himself with the scope of their activities;
- the need to exercise sound judgement and to accept responsibility;
- the need to develop his abilities to the best advantage of the profession.

The candidate will obtain, whenever possible, practical knowledge skills and experience by participating in useful work rather than by simply observing the work of others. Training obtained in the real situation can be enhanced by experience gained from case studies, role playing, intensive discussion and simulation.

His training should emphasize that although his academic knowledge, industrial training and experience may enable him to work as a professional engineer, his future development will demand further studies and experience in order to keep abreast of technological innovations. This continuing professional development (CPD) will help ensure that he will be able to apply to his particular engineering specialty, or in management, new developments and techniques in other branches of technology, science, economics and sociology. In this respect he will also need to take advantage of the learned society activities arranged by the Institution, all of which are of a CPD nature.

At the end of his training period the candidate must be capable of accepting, under guidance, professional responsibility in his particular branch of engineering.

## **2. Training Content for all disciplines**

It is essential that the candidate receives relevant training in engineering practice as well as in engineering administration and management, generally in accordance with the HKIE Engineering Graduate Training Scheme 'A' Model Training Guide (MTG). These guidelines exist for all of the HKIE engineering disciplines. They are guides and training organisations are encouraged to design training opportunities to meet the specific needs of the organisation as well as the future full professional career expectations of the trainee.

### **Skills and Knowledge**

HKIE has adopted for its Scheme 'A' a training objective system whereby trainees are assessed according to the set objective. The Objective Record is a useful indication of what trainees are expected to demonstrate. They are in three parts:

- (a) Common core – the objectives trainees of all disciplines must meet.
- (b) Core – the objectives that all trainees of a discipline must meet.
- (c) Specific – the objectives set by the company/organization that trainees must meet.

## **3. Formal Training Route (Engineering Graduate Training Scheme 'A')**

This route is one where a graduate is formally registered with an HKIE Scheme 'A' approved company/organization. Approval includes a formal training programme (pre-approved by the HKIE), whereby the training is structured to meet the common core, core and specific objectives of the disciplines. The training is carried out under the guidance of an Engineering Supervisor. The training period is two years for all disciplines except Civil, Environmental, Geotechnical and Structural which have a training duration of three years.

Details on the Formal Scheme 'A' Training Route and its requirements are included in other booklets: Scheme 'A' Aims, Procedures and Requirements; Scheme 'A' Training Student Guide; Scheme 'A' Training Record of Objectives.

## **4. General Experience Route (Formerly known as Scheme 'C')**

### **4.1 General Requirements**

The HKIE recognises that some candidates are unable either to take part in its formal training scheme or in some cases any formal training schemes. Consequently an alternative is available to those candidates who have not followed the formal route that leads to Membership.

Under this route the early experience that a candidate acquires after he has satisfied the academic requirements of the Institution may be accepted in lieu of formal training. However, such experience must have provided the individual with a sound and broad understanding of his particular branch of engineering in line with the general requirements for training in his particular discipline. In this respect he would be strongly advised to study carefully the Training Requirements, to ensure that the general experience he is receiving is of sufficient depth, breadth and quality to serve as an acceptable alternative to formalized training. No less important is an understanding of the areas of engineering practice, with which he has had experience and is required to be familiar, together with management.

Valuable guidance as to the type of experience required may be obtained from the Model Training Guides and Training Objective Records published for the EGT Scheme 'A'. These guides may be obtained on request from the Institution, and assistance and guidance may also be obtained from the Institution's Training Manager or Membership Manager.

### **4.2 Supporters' Responsibilities**

A candidate's early post-academic qualification experience must be vouched for by one or more of the candidate's supporters for membership who will be required to state in what capacity they can uphold their judgement of his equivalent training that has been acquired through general experience in the practice of an engineering discipline.

### **4.3 Record of Experience Obtained**

It is probable that a candidate may be employed by more than one organisation during his experience period. Whether or not this is so, a record giving full details of employers, and the nature of experience received, should be kept by the candidate to assist in documenting the formal application to the Institution for the class of Member.

### **4.4 Duration**

For all engineering disciplines, under the General Experience Route, a minimum of five years (post-degree) general experience in lieu of a formal training programme is required. Structured training schemes not formally pre-approved by the HKIE may be considered for exemption toward the five year period on a case-by-case basis. All decisions taken by the Council are final.

### **4.5 Training Obtained Overseas**

Graduates, who have obtained their tertiary educational qualification abroad and remain overseas to obtain initial post-graduate training and who are not registered for Scheme 'A', are advised that such training will normally be assessed as general experience.

However, as the graduate's overseas experience is required to meet the Institution's training requirements, as set out in 1 and 2 of this Section, training records and documentary evidence should be made available to the Institution when a candidate makes application for the class of Member. While it is not mandatory, it is very desirable that candidates submitting evidence of their training and/or experience should make use of a personal log book.

Exceptionally, training carried out under those overseas professional institution formal training schemes which have been judged to be the equivalent of EGT Scheme 'A' may be accepted by the Institution's Qualification and Membership Board, provided full and verified documentary evidence of such training, endorsed by the professional institution concerned, is submitted by the candidate for assessment.

#### **4.6 Pre-degree Training/Experience**

Relevant experience gained prior to obtaining an acceptable academic qualification may be counted towards the period of general experience. The maximum period that could be taken into account is three years. This could consist of:

- (a) up to six months for training undertaken in an approved industrial training centre;
- (b) up to 12 months for sandwich course training;
- (c) any other relevant training/work experience.

Claims for remission will be considered on a case by case basis and judged on their individual merits. All decisions taken by Council are final.

#### **4.7 Post graduate course and academic appointments**

A relevant higher degree may be accepted as part of the general experience period. Normally, the maximum allowed is 6 months for a relevant master's by course work and project normally taking 12 months full-time or 24 months part time; 12 months for a master's by research normally taking 24 months; and 18 months for a relevant doctorate course normally taking 36 months, subject to a review of the practical content of the project or research undertaken. Evidence of the practical aspects should be provided with the application form.

For experience gained in academic appointments, emphasis should be given to hands-on applications of practical engineering, such as research projects, the design of laboratories, and industrial consultation.

### **5. Product Template Route**

Product Template is taken to mean that, regardless of how an engineer gains his experience, as long as he meets the criteria and requirements of the HKIE's definition of a Professional Engineer he would be eligible for Professional Assessment.

## **5.1 General Requirements**

Candidates not fitting into the HKIE normal membership routes will be considered for the class of Member if their experience demonstrate that they have gained the requirement of a Professional Engineer for example, candidates with Professional status from Institutions other than those with which HKIE has Reciprocal Recognition Agreements; and have not less than 4 years of experience.

## **5.2 Procedure**

The candidates should apply on the standard form and indicate that he is applying via the Product Template Route. Candidates are required to submit a 2,000 word report of their experience together with a reference letter from the Candidate's employer.

The Pre-assessment Review Panel (PAR) will consider if the candidate meets the requirement of a Professional Engineer. If this review is favorable then the candidate will be accepted for Professional Assessment.

## **6. Responsible Experience Requirements**

### **6.1 Formal Training Route (EGT Scheme 'A')**

In addition to completing the training requirements set out in Parts 1 and 2 of this Section, each candidate for the class of Member is required to have held a position of responsibility, requiring knowledge and practise of an engineering discipline, for the following minimum periods:

6.1.1 Civil, Environmental, Geotechnical and Structural Engineering  
A minimum of one year of responsible post-training experience.

6.1.2 All other Engineering Disciplines  
A minimum of two years of responsible post-training experience.

Upon completion of his training programme the candidate is expected to exercise judgement and undertake responsibility in a professional capacity, with little more than the normal managerial reference to his superiors.

### **6.2 General Experience Route**

In addition to the general experience duration referred to in 4.4, each candidate for the class of Member is required to have held a minimum of one year of responsible experience. This applies to all disciplines.

As experience is gained, the degree of responsibility will normally increase progressively up to and beyond the stage at which the individual is accepted for Member. It is important that work, regarded as constituting responsible experience, is professional in character and involves responsibility for the management of men and resources. The definition of a professional engineer, given in Section 1 of this booklet, is a good guide to the duties and responsibilities to be undertaken.

## **II CONTINUING PROFESSIONAL DEVELOPMENT (CPD) REQUIREMENT AND GUIDELINES**

### **The HKIE CPD Definition**

"Continuing Professional Development (CPD) is the systematic maintenance, improvement and broadening of relevant knowledge and skills, and the development of these qualities necessary for the successful carrying out of professional duties throughout an engineer's career. In this it is aimed at enhancing individual worth and thus corporate performance."

CPD applies to both Corporate Members and to engineers in the pre-Corporate Member stage.

### **Introduction**

Continuing Professional Development is an ongoing necessity in the ever changing technological world in which we live. The practising professional engineers should aim to remain competent throughout their working careers so that they can properly carry out their various duties. To this end engineers need to take opportunities to update their depth and breadth of knowledge and expertise and to develop those personal qualities required to fulfil their roles in industry and in society.

- ***General Scope of CPD***

CPD covers matters of direct technical relevance as well as broader studies also of importance to the HKIE members in the furtherance of their careers such as communication, environmental matters, financial management, leadership skills, legal aspects, marketing, occupational safety and health and professional ethics.

- ***General Format of CPD***

The format of CPD activities can include but not limited to participating and organising of courses, lectures, seminars/symposia, conferences, presentations, workshops, industrial attachment and visits, e-learning and professional activities. They may be provided by the HKIE Divisions, the engineering industry itself, and a variety of other organizations.

### **CPD Requirements**

The HKIE specifies a minimum formal CPD requirement for those at the pre-Corporate Member stage and its policy is to strongly encourage CPD thereafter. The CPD record will be taken into account when considering any application for Fellowship.

The log book is intended to cover a full career from graduation until retirement. It has been produced as a convenience to members and as a tangible expression of the Institution's commitment to CPD. The log book will provide the CPD activities undertaken in chronological order. In this context it could be useful in application for employment or to join other organizations.

## CPD Activities and the Log Book

Routes	CPD Requirement	Scope of CPD
Formal Training Route (Scheme "A")	A minimum average of <b>45 hours per year</b> calculated from September 1994 or from the commencing date of Scheme "A", up to the time of Professional Assessment	<p>A minimum of <b>54 hours</b> during the Scheme "A" training period(*) must include the following areas:</p> <ul style="list-style-type: none"> <li>(i) <b>Occupational Safety &amp; Health</b> Minimum <b>18 CPD hours</b>.</li> <li>(ii) <b>Other Technical Matters not directly related to the trainee's own discipline</b> (Such as Quality, Environmental, Information Technology, or other technical and related matters) Minimum <b>18 CPD hours</b>.</li> <li>(iii) <b>General Professional Matters</b> (Such as Business Management, Communication, Financial Management, Leadership, Legal aspects, Marketing and other related matters) Minimum <b>18 CPD hours</b>.</li> </ul> <p>(*) Note: No matter if the trainee is on a 2 or 3 years Scheme, the trainee still has to complete this mandatory requirement during the Scheme "A" training period.</p> <p>CPD to be <b>balanced</b> between matters of <b>Direct Technical</b> interest and those of a <b>General Professional</b> kind.</p> <p>'In-house' CPD activities should not be greater than 50% of CPD days.</p>
General Experience Route	A minimum average of <b>45 hours per year</b> for the 6 years immediately prior to their application for Professional Assessment.	<p>It is desirable to have as much variety as possible and a balance between technical and contractual / professional subjects should be sought.</p> <p>CPD requirement for Scheme "A" Training would serve as good guidelines on the scope of CPD.</p>

Routes	CPD Requirement	Scope of CPD
Mature Route	A minimum average of	CPD covers matters of direct

	<p><b>45 hours per year</b> for the 3 years immediately prior to their application for Professional Assessment.</p> <p>This requirement took effect from 1 January 1999 and to be phased in gradually in a uniformly tapered manner. Applicants who apply from 1 January 2002 are required to fully meet the above requirement.</p>	<p>technical relevance as well as those of a broader professional nature. For the latter, emphasis could be placed on one or more of the following areas such as management, leadership, financial as well as safety, health and environmental issues.</p>
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One CPD day can be specified as 6 hours. Any claim of CPD activities of more than 6 hours in a calendar day would require approval by the Engineering Supervisor (for Formal Training Route) or the relevant Discipline Advisory Panels (for General Experience or Mature Route).

It is not practical for the HKIE to approve CPD activities. Corporate Members themselves must determine whether an activity fits the CPD definition or not in their own particular circumstances.

For the pre-Corporate Membership stage it is for the **Engineering Supervisor** (for Scheme "A" trainees) or a **Responsible Person** (i.e. "normally an appropriate senior person in the employing organization") to consider whether the activity should be endorsed in the log book as fitting CPD criteria.

The suitability of a CPD activity should be judged in relation to the HKIE definition above.

The CPD log book format is intended to be easy to complete. The vertical columns on the activity record sheets are as follows:

(a) Pre-Corporate Membership Stage

The far right-hand column is for endorsement by the **Engineering Supervisor** (for Scheme "A" trainees) or a **Responsible Person** who will normally be a senior person in the organization;

(b) Throughout the log book in the column headed "**Activity**" it is intended that the CPD activity title and the major topics covered should be noted;

(c) The column headed "**Activity Organizer**" should give the name of organization providing the activity (e.g. The HKIE).

(d) Postgraduate Degree Programmes are usually not considered as CPD. Nevertheless, Engineers may find some of the modules in the programme are helpful to their professional development and matching the HKIE CPD criteria. In such cases, the Engineers should seek the endorsement of the relevant subjects from their Engineering Supervisor or Responsible Person.

## **Conclusion**

The benefits of CPD are not easily quantifiable but none-the-less real. The HKIE CPD policy is based on the conviction that CPD is of value to its members, to the profession, to industry and to society.



## **SECTION 4 PROFESSIONAL ASSESSMENT**

### **1. Introduction**

Professional Assessment is a process of assessing the extent to which a candidate for the Class of Member meets the admission requirements set out in Section 3 and to ascertain the quality of his technical and responsible experience in his branch of engineering. Interview and essay writing are the two major parts in the Professional Assessment process.

The time taken to achieve the standards required for Member will vary from candidate to candidate with the minimum period of four years as detailed in Section 3 of this booklet. Candidates over 35 years of age may be admitted under a different procedure as Mature Candidates, see Section 5.

The HKIE is a qualifying body for a number of disciplines. Some disciplines have specific requirements for the Professional Assessment. Candidates are advised to check the requirements for the disciplines they seek admission to. Additional information on the various disciplines is available from the Membership Department.

### **2. Exemption from Professional Assessment**

Certain candidates may be exempted from part or all of the Professional Assessment and may proceed directly to Member. These include Corporate Members of Professional Institutions having Reciprocal Recognition Agreements with the HKIE. Refer to Document M14343 for details.

### **3. Procedure**

3.1 Candidates should submit the Institution application form for Election or Transfer to the Class of Member (Form 1/M) with supporting signatures. Requisite periods of training and experience should be completed by the date of submission of the form unless specifically stated otherwise.

3.2 Together with the application form, candidates should submit reports, drawings and documents as detailed below. Civil candidates should refer to the Civil leaflets for further information and requirements.

3.3 The Institution may at any time refer the submission back to the candidates.

3.4 Interviews will be arranged for candidates as soon as applications and submissions have been received and checking procedures have been completed. The writing of the essay normally follows the interview. Details on the interview and essay are contained in Parts 5 and 6.

3.5 Candidates will be notified of the result of their Professional Assessment as soon as a decision has been made and ratified by the Council. Indications of the areas of weakness or failure to satisfy the Assessors will be given to unsuccessful candidates but the Institution will not enter into any further correspondence concerning the decision.

### **4. Submissions required from candidates**

The following submissions are required from candidates for the Professional Assessment.

#### **4.1 Report on Training and Experience**

The object of the candidate's report is to inform the Assessors about the candidate's training and experience (Section 3 "Training and Experience Requirement"). The report should be concise, between 1600 and 2000 words, in good English, typewritten on single sides of A4 paper and submitted in duplicate. At the head of the report the candidate must set out in chronological order, giving the inclusive dates of months and years for the particular periods of training and experience that he has acquired.

The report must not be a mere inventory of work prepared and executed. Instead, candidate must describe the tasks on which he has been employed. His account should be in chronological sequence and should explain clearly the precise position he has occupied in each case and the degree of responsibility assigned to and discharged by him. He should enlarge on any special problems he has met and on which he has obtained more extensive experience. An indication of the size and cost of the works should be given.

#### **4.2 Drawings and documents**

The candidate is required to provide evidence or examples of recent work in support of his claim of attaining professional status, such as reports, plans, calculations, photographs, etc. as appropriate. All these documents should be submitted with the report.

#### **4.3 HKIE Logbook for candidates under the Formal Training Route**

The HKIE logbook or logbooks from other recognised institutions' training schemes will be accepted.

#### **4.4 Continuing Professional Development (CPD) Record**

A record of CPD should be provided. For candidates under the Formal Training Route, a minimum average of 45 hours (or 7.5 days) per year calculated from September 1994 or from the commencing date of Scheme A, up to the time of the Professional Assessment is required. For candidates under the General Experience Route, a minimum average of **45 hours per year** for the 6 years immediately prior to their application for Professional Assessment is required.

CPD may include technical conferences, seminars, symposia, courses, organised site visits and meetings of professional bodies. It is desirable to have as much variety as possible and a balance between technical and contractual/professional subjects should be sought. CPD requirement for Scheme 'A' Training would serve as good guideline on the scope of CPD. For details please refer to Section 3 "CPD Requirements and Guidelines".

Candidates' records of CPD activities should be maintained in the Institution's CPD log book or similar. A record of CPD undertaken will be required before an applicant can proceed to Professional Assessment.

#### **4.5 Supporting Documentation for candidates working in academic institutions**

Engineers who have spent the majority of their experience working in academic institutions should submit a report based on an engineering research project, instead of samples of recent works. The report should include a brief summary of the research project (or projects), stating the subject matter and objectives, and a full list of publications and reports. The report should reflect the candidate's experience in the design and setting up of equipment, the carrying out of research, reporting on the results and cost implications, and drawing appropriate conclusions. A thesis on its own prepared for a higher degree is not acceptable instead of the report.

All documents should be the candidate's own work and documents must be "verified" by a Corporate Member of the Institution or the employer.

All documents submitted will be treated as confidential and will be returned to the candidates. Candidates should however retain copies of all documents submitted as the Institution does not accept responsibility for any documents which may be lost or damaged.

### **5. Interview**

For both normal and mature candidates, Assessors will aim to satisfy themselves that the candidate has spent sufficient time on suitable work to absorb the lessons to be learned therefrom. Both Assessors may put questions to the candidate with the object of ascertaining how far he has taken advantage of the opportunities provided during his training and experience. They may ask the candidate questions to ensure that standard of proficiency and competence is attained to satisfy a recommendation for election to membership.

To begin with, questions will be directed at the candidate's report. To establish to what extent it is the candidate's own work and whether the needs of clients were met. Application of theory to practice is to be tested, including the accuracy and practicality in both technical and financial aspects. Appreciation of external factors beyond his control and the extent of his involvement are also relevant for consideration.

The candidate as a professional is to be considered by way of examining the quality of his work, his attitudes, and his personal responsibility. He will be assessed whether he has exercised original thought and, technical judgement and insights; whether he has been involved in training others and his experience in supervisory role. His broad appreciation of engineering in general and the extent to which he strives to keep abreast in his own field are also relevant.

Questions will also be asked on his knowledge of professionalism and, his appreciation of ethics, responsibility to others, personal relationships and the importance of communication.

To conclude, the candidate may be tested on his knowledge of engineering processes and management, his appreciation of investigation, planning, design, construction, manufacture, operation, maintenance and research. Other questions may include organisational abilities, safety issues, environmental protection and management in general.

Following the recommendation of the Professional Assessment Committee and the approval of the Qualification and Membership Board in June 2002, it was resolved that "Although not mandatory, the candidate should be given 10 minutes to present to the Assessors the project submitted for Professional Assessment. The objective is to test the candidate's presentation skill as a professional engineer." This policy shall be applicable to all applicants who submit their applications on or after 1 March 2003. In addition, candidates for Professional Assessment should also refer to any additional requirements for a particular discipline.

## **6. Essay**

The essay writing is intended primarily as a test of the candidate's knowledge and experience in engineering practice and management as well as the broader issues of the engineer in community. It would also demonstrate the candidate's ability to marshal his thoughts and to express his ideas in a clear and concise manner in written English.

In general, the essay test will follow the interview immediately. The candidate may be requested to write the essay at a different time and venue to be arranged by the assessors.

The Assessors will give two topics relating to the candidate's experience for him to choose one. The candidate may seek clarification of the topics within the first 15 minutes. The essay must be written in English. Use of pencil is not allowed.

The candidate will not be permitted to refer to other books or notes but an ordinary dictionary may be used during the test. Electronic and other devices shall not be used. Two hours are allowed to write the essay of approximate 1600 words. It should be noted that in general an essay less than 1000 words is not likely to pass.

Exemption of essay writing test is very rare. Request for exemption must be submitted with proper supports and the Institution shall have the absolute discretion to consider granting exemption or not.

## **7. Judging and Marking Essays**

Assessors will judge and mark the essay against the following criteria:

### **7.1 Knowledge of the subject and relevance of the answer:**

- Does the candidate exhibit a reasonable depth and breadth of knowledge bearing in mind his experience as demonstrated by his submissions and Interview?
- Does the candidate understand the subject?
- Does the answer cover the whole subject set or only a part of it?
- Has the candidate refrained from padding the essay with irrelevant and repetitive material in order to achieve the desired length of 1600 words? (1000 words would be considered the minimum for a reasonable essay in the time allowed.)
- Is the essay concise?

### **7.2 Clarity of argument, presentation and grammar:**

- Are the candidate's ideas expressed in a logical manner?
- Does the essay have a discernible and satisfactory framework or pattern?
- Is the candidate's argument clear and easy to understand?
- Are paragraph divisions and sub-headings sensibly chosen?
- Are most sentences easy to understand?
- Has the candidate avoided jargon and the use of catch phrases, or apparently meaningless abbreviations? (Abbreviations when first used should be accompanied by a full spelling).
- Are the spelling and punctuation reasonably correct?

7.3 Where a candidate is required to express an opinion in his essay he will not be penalized should his opinion not find favour with his Assessors, provided the argument supporting is logical.

## **8. Final Assessment**

A candidate will be recommended for admission to Member if his report and results of interview and essay combined are judged to be acceptable.

However, some flexibility is possible. For example, if the Assessors are not satisfied with the drawings or any other part of a candidate's submission and it becomes apparent during the oral examination that he should be able to make good this deficiency, he may be given the opportunity to submit an additional document (e.g. drawing, calculations or bill of quantities). In this event the Assessors will give the candidate a definite period of time to produce the document (normally about a month).

## **SECTION 5        MATURE ROUTE**

Candidates over 35 years old may seek admission to the Class of Member via the Mature Route. There are two routes for Mature Candidates, depending whether they have a recognised academic qualification or not.

### **1.        Candidates with recognised academic qualifications**

For candidates with recognised academic qualifications, training and experience taking the Professional Assessment procedures via the Mature Candidate Route instead of the Normal Candidate Route, they should normally have 6 years post qualification experience in a relevant branch of engineering. Discretion however may be exercised by the relevant Discipline Advisory Panel. They must follow the assessment procedures as detailed in item 3 to item 5 below.

### **2.        Candidates without recognised academic qualifications**

Mature candidates in this category are persons with considerable responsible experience as engineers but who may not have or may not wish to claim to have the required academic qualifications prescribed for Member. They should have experience in posts of increasing responsibility in a relevant branch of engineering over a period of at least 15 years. They should have attained a position demonstrating a level of competence that would have met the requirements for the class of Member had they possessed the required academic qualifications. They must follow the assessment procedures as detailed in item 3 to item 5 below.

### **3.        Procedure**

- 3.1        A candidate should apply on the normal form for election or transfer to the class of Member (Form 1/M) with supporting signatures, information and papers specified therein. The candidate should indicate on the form that he is applying via the Mature Route and ensure that his supporters are aware of this.
- 3.2        If his candidature is approved, he shall either submit a paper as described in item 4.1 below that he has already written or be allowed a period of two years in which to prepare and submit a paper.
- 3.3        If the candidate chooses to prepare a paper, he shall submit for Discipline Representative's comment a brief synopsis of his paper setting out the main sections and method of treatment.
- 3.4        The candidate's paper will be assessed by a panel of Assessors on behalf of the Institution. If it is found satisfactory by the panel the candidate will be required to attend an interview. An interview will not be conducted if the paper is held to be unsatisfactory, but a candidate may be given an opportunity to re-present the paper after modification. All papers will be treated as confidential.
- 3.5        The Institution may at any stage refer the submission back to the candidate.

- 3.6 The candidate will be notified of the result of his application as soon as a decision has been made and ratified by the Council. Indications of his areas of weakness or failure to satisfy the Assessors will be given to an unsuccessful candidate but the Institution will not enter into any further correspondence concerning the decision.

#### **4. Submissions required from candidates**

The following submissions are required from Mature candidates for the Professional Assessment.

##### **4.1 Submission Paper**

- 4.1.1 The candidate will be required to submit a paper of single topic in English of approximately 5,000 – 10,000 words. It may be based on a design study or a report of original work of his own authorship. In the case of collaborative work the candidate's own contribution must be made clear.
- 4.1.2 Original papers must be typed or printed double-spaced on single sides of A4 paper. Two copies should be provided and signed by his employer or principal, who should preferably be a Corporate Member of the Institution, to certify that the paper is the candidate's own unaided work.
- 4.1.3 In the paper the candidate is expected to offer an ordered and critical exposition of the subject, to define the problems with detailed engineering solutions and to relate the application of fundamental engineering principles to some aspects of engineering practice. He should not have merely undertaken a historical review except as a necessary background to the subject. Most candidates will find it more profitable to concentrate in depth on an engineering achievement in which they have themselves played a major part than to attempt to cover a wider field. Where appropriate the text can be illustrated by clearly drawn sketches and/or diagrams. A reference list should be provided if the candidate makes use of any source material.

##### **4.2 Record of CPD**

The requirement of CPD reflects the need of practising engineers to remain competent throughout their working careers so that they can properly carry out their duties. To this end, engineers, on an ongoing basis, need to update their depth of knowledge and skills and to develop those personal qualities which enable them to fulfil their roles in industry and in society.

It follows that CPD covers matters of direct technical relevance as well as those of a broader professional nature. For the latter, emphasis could be placed on one or more of the following areas such as management, leadership, financial as well as safety, health and environmental issues.

The HKIE recognises however the differences in career experience and consequent development needs between mature candidates and graduates. It also recognises that these differences could also exist in opportunities for gaining ready access to formal CPD information, activities and resources.

Therefore, the CPD requirement for Mature Candidate is that they should demonstrate that they have undertaken an average of 45 hours (or 7.5 days) per year of relevant extra developmental updating for the 3 years immediately prior to their application for Professional Assessment.

This requirement took effect from 1 January 1999 and to be phased in gradually in a uniformly tapered manner. Applicants who apply from 1 January 2002 are required to fully meet the above requirements. For details please refer to Section 3 "CPD Requirements and Guidelines".

## **5. The Assessment Interview**

- 5.1 If the candidate's submission is satisfactory, he will be required to attend an interview at an appointed place and time with two senior Corporate Members of the Institution. The candidate may bring to the interview other material such as design study notes and/or drawings of original works that he considers will be helpful in demonstrating that he has attained a standard of knowledge in his particular field of engineering which, in the case of candidate without recognised academic qualifications, could also help to justify exemption from the formal academic requirements for Member.
- 5.2 The Assessors will judge whether the candidate has demonstrated sufficient understanding of the principles of engineering. They will ask the candidate questions to ensure that standard of proficiency and competence is attained to satisfy a recommendation for election to membership.

## **6. Essay Writing**

Mature Candidates are normally not required to write an essay. However, if a candidate's performance in the interview is marginally below standard, he will be given a choice to write an essay and hence an opportunity to secure an overall pass in case he could achieve sufficiently high grade in the essay writing.

## **SECTION 6 RESIT OF PROFESSIONAL ASSESSMENT**

Guidance notes on resit of Professional Assessment are available for download on our website.

## **MEMBERSHIP INFORMATION BOOKLETS AND APPLICATION FORMS**

### **MEMBERSHIP INFORMATION BOOKLETS**

M1	Classes of Membership
M2	Routes to Fellowship
M3	Routes to Membership
M4	Routes to Associate Membership

### **APPLICATION FORMS**

Form 1/F	Application for Election/Transfer to the Class of Fellow
Form 1/M	Application for Election/Transfer to the Class of Member
Form 1/G	Application for Election/Transfer to the Class of Graduate Member
Form 1/AM	Application for Election/Transfer to the Class of Associate Member
Form 1/S	Application for Election as a Student Member
Form 1/D	Application for Admission in an Additional Discipline by Professional Assessment
Form 1/DA	Application for Admission in an Additional Discipline by Reciprocal Recognition
Form 1/C	Application for Election to the Class of Companion
Form 1/AF	Application for Election as an Affiliate
Form 1/AQ	Application for Assessment of Academic Qualifications
Form 1/TA	Application for Training Assessment – Civil Discipline

### **ADDITIONAL INFORMATION SHEETS**

M30675	Guidance Notes for Civil Professional Assessment
M39487	Admission Requirements for Associate Member in Aircraft Discipline
M39484	Admission Requirements for the Aircraft Discipline
M39481	Admission Requirements for Associate Member in Biomedical Discipline
M39476	Admission Requirements for the Biomedical Discipline
M22949	Admission Requirements for the Building Discipline
M8589	Admission Requirements for the Building Services Discipline
M39485	Admission Requirements for the Chemical Discipline
M40004	Admission Requirements for the Energy Discipline
M19996	Admission Requirements for the Environmental Discipline
M39482	Admission Requirements for Associate Member in Fire Discipline
M39479	Admission Requirements for the Fire Discipline
M12432	Admission Requirements for the Geotechnical Discipline
M39475	Admission Requirements for the Information Discipline
M39486	Admission Requirements for the Logistics and Transportation Discipline
M39477	Admission Requirements for the Manufacturing & Industrial Discipline
M39483	Materials Engineering Courses for Supplementary Study and Continuous Professional Development to Satisfy Admission Requirements of Materials Discipline
M39478	Admission Requirements for the Mechanical Discipline
M22622	Admission Requirements for the Structural Discipline
M14343	Professional Qualifications for Corporate Membership – Exemption from Professional Assessment
A14343	Technologist Qualifications for Associate Membership – Exemption from Assessment
M39480	Matching of Aircraft Maintenance License holders to HKIE Membership
M40001	Special Route for Specific Disciplines (Environmental, Information and Materials)
M40002	Criteria and Procedures for candidates with engineering academic qualifications which are not accredited engineering degrees for Professional Assessment
M40003	Research and Development Route to Corporate Membership
M39488	Guidance notes on resit of Professional Assessment
M40005	Recognition of engineering and computer science programmes of the University of Macau for Intakes in 2010 and before
M40006	Associate Membership Route to Corporate Membership
M40007	Appeal Procedures
A40008	Matching of ATSEP Certification Holder to Associate Membership of the HKIE

## **TRAINING BOOKLETS**

Scheme 'A' Aims, Procedures and Requirements; Scheme 'A' Training Student Guide; Scheme 'A' Training Record of Objectives.

**Please refer to our website for the latest version of the above information:**

<http://www.hkie.org.hk/eng/html/downloads/membership.asp>