Effective from 04/10/2018

# PROFESSIONAL REVIEW RULES

The Institution of Engineers, Sri Lanka

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# PROFESSIONAL REVIEW RULES

## 1. INTRODUCTION

Set out here are the Rules for acceptance of a candidate into the class of Corporate Member of the Institution of Engineers, Sri Lanka, herein after referred to as the IESL.

1.1. A candidate for election as a Corporate Member of the IESL is required to have obtained an approved academic qualification in one of the many disciplines of engineering and also to have had in that discipline adequate training and experience, and also attained the expected competences, all of which will be assessed at a Professional Review.

1.2. Details of the requirements in regard to training, experience and expected competences, together with the procedure according to which candidates may apply for election and attend the Professional Review are set out in these rules.

1.3. Candidates should appreciate the fact that they are dependent on senior members of the profession for effectively directing their work, imparting knowledge and enabling them to gain experience, and that they must therefore seek and obtain the assistance and guidance of their seniors at all times.

1.4. Candidates shall be normally enrolled as Associate Members of the IESL for a minimum period of one year prior to applying for transfer to Corporate Membership.

1.5. Candidates applying for corporate membership as Chartered Engineers of professional engineering institutions recognized by IESL, shall satisfy the educational requirements for Associate Membership of IESL.

## 2. DEFINITIONS

### 2.1. Chartered Engineer

A Chartered Engineer is one who is capable of assuming personal Professional Responsibility for the analysis and application of Engineering principles in the fundamental processes of Investigation, Planning, Design, Construction, Operation, Maintenance, Management and Development of Engineering works or plant, or in Engineering Research and/or Engineering Education. He will be involved with the identification of solutions to problems, management and direction of high-risk and resource intensive projects. He is able to communicate his ideas clearly, concisely and intelligibly to others. His work requires the exercise of original thought and judgement, and the ability to supervise the Technical and Managerial work of others. Professional judgement is the key feature of his role, applied to the assumption of responsibility for the direction/demonstration of important tasks, including the profitable management of industrial and commercial enterprises.

### 2.2. Corporate Member

A Corporate Member of the IESL is one who has satisfied the Council of the IESL that he/she has attained such standard of education, training and experience as required by the Council to testify to his/her proficiency as a Chartered Engineer. He/she should be on the Roll of the Institution and is entitled to use the abbreviation CEng (Sri Lanka).

Every individual member of the profession shall at all times so order his conduct as to uphold the dignity and reputation of his profession and to safeguard the public interest in matters of safety, environment and health and otherwise. He shall exercise his professional skill and judgment to the best of his ability and discharge his professional responsibilities with integrity.

### 2.3. Education

A candidate is required to have successfully completed the educational qualifications as set out in Rule 4.1.

### 2.4. Recognized Training

Recognized Training is the structured training undergone by a candidate with “approved academic qualification” as set out in Rule 4.1, at an “approved organization” (Please see Rule 5.2) to adapt himself from an academic to an industrial environment, acquiring the practical skills and a knowledge of the work essential for his future employment, so that he should be able to shoulder responsibility with confidence under decreasing supervision by the end of his training. During this training he should be under the guidance of a Corporate Member of the IESL. Details of the Training required for different disciplines are given in Annex A.

## 2.5. Responsible Experience

Responsible Experience is the experience gained in a responsible position in the field of Engineering he has specialized in and its applications, under the guidance of a Corporate Member of the IESL, after satisfying the Approved Academic Qualification and Recognized Training requirements. (Please see Rule 5.3)

## 2.6. Competences

Recognition as a Chartered Engineer is open to any academically qualified engineer who can demonstrate competence to perform professional work to the necessary standards. Competence includes the knowledge, understanding and skills that underpin performance. Engineers become competent through a mixture of education and professional development.

In keeping with international advancements in the recognition and registration of engineering professionals, the IESL expects engineers seeking registration as Chartered Engineers, to demonstrate the following five core competences, namely,

1. Understanding of engineering principles
2. Practical application of engineering knowledge
3. Managerial Involvement
4. Interpersonal skills
5. Professional conduct

Details of the competences expected of a Chartered Engineer are given in Annex B.

## 2.7. International Professional Engineer

An International Professional Engineer is a Corporate Member of IESL who is registered with the IESL Registration Board (IESLRB), after a strict evaluation according to international standards. Through meeting the requirements of the IESLRB, the International Professional Engineer designation, IntPE (Sri Lanka), is a quality mark for Sri Lankan engineers both within Sri Lanka and at an international level.

## 3. AIM, SCOPE AND COMPOSITION OF THE PROFESSIONAL REVIEW

### 3.1. Aim and Scope

The Professional Review conducted by the IESL is intended to assess the content, quality and duration of the training and experience undergone and the achievement of the required level of competence by a candidate. The Review is designed to test the candidate's status in respect of the following core competences required of a Chartered Engineer:

1. Understanding of engineering principles
2. Practical application of engineering knowledge
3. Managerial Involvement
4. Interpersonal skills
5. Professional conduct

The above core competences are further explained in Annex B of this document.

### 3.2. Composition

The Professional Review shall comprise:

3.2.1. An assessment of Recognized Training and Responsible Experience gained by the candidate (Refer Rule 5).

3.2.2. An evaluation of the Report on Recognized Training and Responsible Experience (Refer Rule 6).

3.2.3. An evaluation of the Design and calculations, drawings, specifications, BOQ or Project (Refer Rule 7).

3.2.4. An interview by a panel of two (2) or more Corporate Members to assess the candidate's compliance with the five core competences as laid down in Annex B Form IESL PR1b, Annex B.1 (Refer Rule 8).

3.2.5. A Presentation in PowerPoint not exceeding 20 minutes, highlighting how the Key Competences have been met. (Refer Rule 8).

3.2.6. Written Tests as set out in Rule 9.

## 4. PRE-QUALIFICATIONS FOR PROFESSIONAL REVIEW

A candidate for election as a Corporate Member of the IESL, is required to have obtained an approved academic qualification in one of the many disciplines of engineering and also to have in that discipline Recognized Training and Responsible Experience as set out below and in the remaining sections of this document.

### 4.1. Academic Qualifications

**Academic qualifications required for Associate Membership as given in Annex 1 shall be satisfied by any member who is applying for corporate membership.**

(The document approved by Council in current practice will be given as Annex 1)

### 4.2. Recognized Training and Responsible Experience

An application should be made only when a candidate has completed the minimum stipulated period in aggregate, of Recognized Training and Responsible Experience, on or before the closing date for applications.

Of this period, up to a maximum of six (6) months only will be considered prior to his obtaining the qualifications as required for Associate Membership of the IESL. This will apply to,

i. the industrial and workshop training of graduates, in continuous periods of not less than 2 months (subject to provisions in Sub Section 5.6.3.2).
ii. the work experience in the relevant field of candidates who have not followed full-time academic courses. In such cases half or more of the period of work experience will be counted as being equivalent to the training period (six months) prior to satisfying the academic requirements as per 3.1(subject to provisions in Sub Section 5.6.2).

(Rule 5 sets out in detail the requirements in respect of Recognized Training and Responsible Experience)

### 4.3. Engineering Research and/or Engineering Education Route

4.3.1. A candidate who wishes to be examined on the basis of engineering research and/or engineering education, **teaching** at undergraduate or higher level must -

4.3.1.1. Possess an acceptable research Post Graduate Degree in Engineering (which normally takes two academic years or more) from an Institution recognized by the IESL;

4.3.1.2. Be engaged on engineering research work or engineering education, teaching at undergraduate or higher level at the time of his application, in a Research institution recognized by the IESL; and

4.3.1.3. Complete the Training requirements as set out in Rule 5.4.1 under Training for Research Candidates in Rule 5.4

4.3.1.4. Satisfy the Responsible Experience for a period of
   a. 24 months responsible practical experience as set out in 5.4.1.2.1
   b. 36 months research experience as set out in 5.4.1.2.2

4.3.2. A candidate who wishes to be examined on the basis of engineering education, teaching at technologist or technician level must -

4.3.2.1. Possess an acceptable research Post Graduate Degree in Engineering (which normally takes two academic years or more) from an Institution recognized by the IESL;

4.3.2.2. Satisfy the training requirements as set out in Rule 5.2
**or**
the training requirements as set out in Rule 5.4.2 under Training for Research Candidates in Rule 5.4.

4.3.2.3. Satisfy the Responsible Experience for a period of
   a. 36 months responsible practical experience as set out in 5.4.2.2.1
   b. 36 months research experience as set out in 5.4.2.2.2

## 5. DURATION AND CONTENT OF RECOGNIZED TRAINING AND RESPONSIBLE EXPERIENCE

Note: Sections 5.1 to 5.3 are for practicing engineers.
Section 5.4 is for candidates applying through the research and education route, where specific requirements are given for such candidates.

### 5.1. General

Set out in this Section are the requirements in respect of training, detailing durations, content and manner of presentation

5.1.1. It is necessary that candidates should have had **acceptable facilities at their place of employmen**t to receive proper guidance from Corporate Members of the IESL as to their training and experience, which will enable them, in time, to become competent members of the profession and eligible for Corporate Membership. Such organizations will be recognized as such by the IESL, and will be referred to as an **"approved organization".**

5.1.2. Where in-house facilities are not available the candidate should arrange with his employer for release to an 'approved organization' having the facilities for training.

5.1.3. A **minimum** of forty eight (48) months in aggregate of Recognized Training and Responsible Experience as defined in Rule 4.2 or 4.3 is required for admission as a Corporate Member of the IESL.

5.1.4. It is the responsibility of the candidate to obtain for himself/herself the training and experience to meet the requirements set out in these Rules.

5.1.5. During the 48 months (minimum) period of training and experience, candidates should have acquired a sufficient and varied knowledge of engineering techniques, methods, materials and management pertaining to his field of engineering.

5.1.6. For purposes of clarity in defining the scope of these 48 months of training and experience, and setting out acceptable deviations from general requirements, the period of 48 months is divided hereafter into two periods of **24 months recognized training** and **24 months responsible experience**.

### 5.2. Recognized Training

5.2.1. The period of training should afford the Trainee adequate opportunity to adapt himself from an academic to an industrial environment, during the course of which he/she should be directed to acquire the practical skills and knowledge of the work essential for his/her future employment, to be able to shoulder responsibility with confidence under decreasing supervision.

5.2.1.1. During the Training period the Trainee should acquaint himself/herself of:

a. The professional conduct of a Chartered Engineer, as set out in the Code of Ethics of the IESL.

b. The need to provide suitable safety measures in every Engineering project.

c. His/her responsibilities to his/her employer, colleagues, other Engineers and to the society at large.

d. The importance and relevance of his/her theoretical knowledge to the design, construction, operation, maintenance etc. of the service, which the employing organization deals with.

e. The general problems affecting an industrial organization such as financial, economic, commercial limitations; constraints brought about by the quality and number of staff, availability of material resources and the need to conserve the natural environment, and the operational and maintenance requirements that may affect engineering decisions.

f. The vital importance of good industrial relations, safety, health and welfare, both in relation to employees and the general public.

g. The need to understand the point of view of others and to promote good personal communications at all levels.

h. The need to exercise sound judgment and to accept responsibility for it.

i. The need to develop his/her activities to the best advantages of the profession.

j. Environmental and Social issues, an awareness of the current laws and rules pertaining to these and current trends in these areas.

5.2.1.2. The period of Recognized Training should consist of the following elements:

a. Induction
b. Practical Skills
c. General Engineering Training
d. Directed Objective Training

5.2.1.2.1. During Induction, trainees are normally assisted to adapt themselves to change from an Academic to an Industrial environment. For this purpose they should be oriented in their organizations, be informed of service conditions, obligations and privileges, occupational hazards and safety precautions to be taken, trade union matters, environmental issues etc.

5.2.1.2.2. A period of training in Practical skills essential for the Trainee's future development and also for him/her to appreciate the work of the skilled craftsmen, should be given and the Trainee should carry out important basic items of work himself/herself.

5.2.1.2.3. The period of General Engineering Training will normally occupy more than half of the total training period. During this time the trainee should be introduced to the work of as many fields of engineering to which he/she belongs.

5.2.1.2.4. The final period of Recognized Training should be directed in preparing the Trainee for the status he/she is to hold subsequent to completion of the full period of training. During this time he/she will be allowed to shoulder responsibility in carrying out specific jobs under decreasing supervision in order to stimulate his/her interest and build up his confidence.

5.2.1.2.5. Throughout his/her training and responsible experience period, the Trainee is required to maintain a **Log Book** of his activities to ensure that the important features of his/her training and responsible experience are recorded, and endorsed by his Employer / Chartered Engineer / Mentor. This Log Book will facilitate the recognition of a candidate's training and responsible experience by the IESL (vide Rule 5.5). The Log Book must be maintained for a minimum period of four years which includes the recognized training period or up to applying for the Professional Review. IESL has a standardized Log Book for this purpose.

5.2.2. Recognized training requirements for the various disciplines are set out in Annex A.

5.2.3. Training requirements for engineering disciplines not covered in Annex A must be referred to the Executive Secretary for acceptance, prior to embarking on a training programme.

5.2.4. Guidelines for Mentoring are set out in Annex C.

5.2.5. "IESL Approved Organizations" (Section 5.1.1) that are entrusted with providing the required Training and Responsible Experience must have a structured training programme under the supervision of a Chartered Engineer.

### 5.3. Responsible Experience

5.3.1. After satisfying the Educational and Training requirements, a candidate for Corporate Membership must satisfy the IESL that he/she has had not less than 24 months responsible experience in an approved organization and in a responsible position in the field of Engineering he/she has specialized in and its applications. During this period the candidate shall receive guidance from a Corporate Member of the IESL.

5.3.2. This experience in the capacity of an engineer should be designed to broaden the candidate's understanding of engineering practice in the relevant discipline. The experience should be varied and it is desirable that the candidate should have the opportunities for engaging in tasks of gradually increasing responsibility.

5.3.3. This professional experience shall not be of a routine nature and must involve the exercise of engineering judgment, display of original ideas, and the taking of

engineering decisions with responsibility to cover both technical and managerial aspects of his work.

**5.3.4. Civil Engineers should have at least six (6) months' Responsible Experience in a Design Office in addition to the training requirements laid down in A. 4.1.2, to make up a total of 12 months Design Office experience. A Civil Engineering candidate shall also have a minimum of 24 months of responsible experience and out of which, at least 12 months should be responsible construction experience.**

5.3.5. In the case where the candidate is mentored, the Mentor shall also supervise the Responsible Experience.

## 5.4. Engineering Research and/or Education Route

### 5.4.1. Teaching at Undergraduate or Higher Level Engineering Education

5.4.1.1. A Candidate who wishes to be examined on the basis of engineering research and/or engineering education must have at least 60 months' experience in Engineering after obtaining academic qualifications required for Associate Membership.

5.4.1.2. In addition to the academic requirements set out in rules 4.1 and 4.3.1.1, candidates must meet the following training and experience requirements.

5.4.1.2.1. Has acquired (whilst holding a responsible position of at least a senior lecturer in engineering at an IESL recognized Higher Educational Institution or holding an equivalent position and having equivalent qualifications in Engineering in a Research Institution recognized by the IESL) for a period of at least 24 months in responsible practical experience under a Chartered Engineer.

And

5.4.1.2.2. Has acquired at least 36 months in aggregate, research experience in engineering, which may include;

- Up to three (3) years on research for successful completion of a higher degree for which the following time frames are counted
  Masters Degree in an Engineering field through course work– 03 to 12 months depending on the research content.
  Masters Degree in an Engineering field with Research or MPhil with Research - up to 02 years
  Doctorate Degree in Engineering - up to 03 years

- Research carried out whilst holding the position of Senior lecturer in Engineering or above at a Higher Educational Institution or holding an equivalent position having required qualification in a Research Institution recognized by the IESL. In case of the Research Institution the Candidate

should work under an Academic/ Professional having a Post Graduate qualifications of M Phil or higher.

5.4.1.3. A Research and/or Engineering Education candidate will, in addition, have to appear for the Interview and the Written Papers 'A' and 'B' as for a candidate applying through the normal route.

### 5.4.2. Technologist and Technician Level Education

5.4.2.1. A Candidate who wishes to be examined on the basis of engineering research and/or education under this route must have at least 72 months experience in Engineering education after obtaining academic qualifications required for Associate Membership.

5.4.2.2. In addition to the academic requirements set out in rule 4.1 and 4.3.2.1, candidates must meet the following training and experience requirements.

5.4.2.2.1. Has acquired (whilst holding a responsible position of at least a senior lecturer in engineering at an IESL recognized Tertiary Educational Institution) for a period of at least 36 months in responsible practical experience under a Chartered Engineer.

5.4.2.2.2. Have had in addition to 5.4.2.2.1

At least 36 months in aggregate research experience in engineering which may include;

- Up to three (3) years on research for successful completion of a higher degree for which the following time frames are counted

  Masters Degree in an Engineering field through course work– 03 to 12 months depending on the research content
  Masters Degree in an Engineering field with Research or MPhil with Research - up to 02 years
  Doctorate Degree in Engineering - up to 03 years

- Research carried out whilst holding the position of Senior Lecturer in Engineering or above at a Higher Education or Tertiary Education Institution or holding an equivalent position and qualification in a Research Institution recognized by the IESL. In case of the Research Institution the Candidate should work under an Academic/ Professional having a Post Graduate qualifications of M Phil or higher.

5.4.2.3. A Research and/or Engineering Education candidate will, in addition, have to appear for the Interview and the Written Papers 'A' and 'B' as for a candidate applying through the normal route.

## 5.5. Log Book

5.5.1. The **submission of a Training Log Book is compulsory.** A comprehensive record of Training and Experience should be entered by the candidate in the Log Book, such records being certified by the Engineer in charge of the work or the Mentor, at the end of each period of training and responsible experience.

5.5.2. Training Log Books will be issued to Student Members and Associate Members of the IESL and duly filled Log Books shall be submitted at the Professional Review.

5.5.3. Training Log Books should not be used merely to catalogue the work done, but should be used to describe details of problems which arose and how these were overcome, and any other notable features of a particular training period. The Training Log Book should provide a systematic, neat, accurate, comprehensive and detailed record of training and hands-on experience giving small sketches where necessary.

5.5.4. A candidate may in addition to the Training Log Book submit duly certified drawings, sketches, calculations, technical papers, photographic records etc. prepared personally by him which will facilitate assessment at the Professional Review.

## 5.6. Exceptions

### 5.6.1. Exceptions in Duration of Recognized training and Responsible experience for Candidates working in engineering institutions not approved by IESL

Engineering Institutions coming under this category are:

a. Those organizations who have not applied for approval, but may be having necessary resources for approval, such as chartered engineers in the relevant field in fulltime employment. Documentary evidence certified by a chartered engineer shall be provided by the candidate. However, the IESL reserves the right to accept such evidence on a case by case basis.
b. Those organizations whose approval has not been renewed
c. Those organizations which have the physical resources but do not have chartered engineers for supervision of candidates.
d. Non-engineering organizations employing engineers (e.g. Banks)

5.6.1.1. For candidates employed in institutions in category a) above:

For recognized training and responsible experience, the period in such an institution is taken as 50% of the actual period of training or experience. If the candidate has any period of training or experience in an approved organization, that period may be added to make up the total period. In such cases (category a), the candidate should provide evidence that he has been directly supervised by a Chartered Engineer (in the case of foreign organizations, this would be an International Professional Engineer under the IPEA).

5.6.1.2. For candidates employed in Institutions in category b) above:

For recognized training and responsible experience, the period in such an institution is taken as 75% of the actual period of training or experience. If the candidate has any period of training or experience in an approved organization, that period may be added to make up the total period.

**However, the organization shall obtain recognition within a maximum of 5 years after lapsing of recognition, for this facility to be available for candidates.**

5.6.1.3. For candidates employed in Institutions in Category c) above:

The Mentoring Scheme will apply.

Where release for training in an approved organization cannot be arranged, then the candidate will be required to have **thirty six (36) months recognized training** and **twenty four (24) months responsible experience** under the supervision of a Mentor, who will be a Corporate Member of the IESL. Mentoring will be done in accordance with the guidelines set out in Annex C.

5.6.1.4. For candidates employed in Institutions in Category d) above

This exception is applicable only to those Candidates who are employed in non-engineering institutions or organizations who have completed 24 months recognized training and 12 months responsible engineering experience (or equivalent periods as given in section 5.6.1.1, 5.6.1.2 or 5.6.1.3). The remaining 12 months may be obtained while working in an organization of category d). They require a further 36 months in a responsible position in the non-engineering institution or organization to be eligible to apply under this category. During this 36 month period he/she shall be working as an engineer under the supervision of a Chartered Engineer/Mentor.

**Note: In the case of Civil Engineering candidates, the requirement of 06 months of Design Office experience as given in sections 5.3.4 and A 4.1.2, cannot be satisfied by organizations listed under the above exceptions.**

**5.6.2. Exceptions for Chartered Engineers of Professional Institutions recognized by the IESL**

5.6.2.1. Academic qualifications:

Candidates applying for corporate membership as chartered engineers of professional engineering institutions recognized by IESL shall satisfy the educational requirements for Associate Membership of IESL.

5.6.2.2. Professional qualifications:

i. any candidate shall have 48 months of engineering experience after obtaining the academic qualifications stated above

ii. Civil engineers will be required to submit a design supported by calculations, specifications, drawings and priced BOQ

or

submit a design oriented Project Report based on the candidate's own direct involvement as part of his/her normal duties within the preceding ten years or results of a project study in the form of a dissertation of not less than 6000 words

5.6.2.3. Report on Experience

i. The candidate is required to submit along with his application a Report on his Experience.

ii. The main objective of the Report on Experience is to demonstrate that the candidate has achieved the degree of professional competence required of a Corporate Member of the IESL.

5.6.2.4. Written Paper

All candidates are required to pass a written examination where the knowledge of the Sri Lankan legal framework to practice engineering in Sri Lanka and IESL code of ethics will be assessed.

5.6.2.5. Interview

All candidates who have successfully completed the written paper and have satisfied the requirements as given in a) and b) above, shall appear for an Interview and at the outset of the interview candidate is required to make a Power Point presentation not exceeding twenty (20) minutes time.

5.6.2.6. Candidates applying under this route should be current members of the Professional Institutions recognized by the IESL at the time of application.

**Exemption:**

Citizens of Sri Lanka who have been practicing Engineering in an IESL approved organization (in Sri Lanka) for a minimum of 5 years after obtaining the Charter from a recognized engineering institution will be exempted from the written examination.

**5.6.3.** Exceptions in **Recognized Training**

5.6.3.1. Candidates who have successfully completed a post-graduate research degree of a recognized academic institution, which requires a minimum of two (2) academic years may count half such period up to a maximum of twelve (12) months towards part of the recognized training (Rule 5.1.6).

5.6.3.2. Civil, Electrical, Electronic and Chemical engineers who have successfully completed such a course may count up to a maximum of six (6) months of the allowed 12 months towards Designs Office training laid down in A.4.1.2 (Civil), A.6.1.2 (Electrical, Electronic Telecom), A.6.2.3(electrical, Electronic Telecom), and A.3.1.2 (chemical), provided that the Design content of the post-graduate course is such that it is equivalent to the work that is normally carried out in a Designs Office and that the calculations and drawings are submitted as normally required, in respect of the Design work carried out in the course of the research study.

5.6.3.3. A maximum period of six (6) months practical training carried out prior to meeting academic requirements for Associate Membership may be counted towards training, provided such training was adequately supervised by a Corporate Member, and the applicant was actually and actively engaged in the work and provided such practical training contributed directly to the development of the capabilities of the Engineer in the discipline in which he specializes, and provided that such training was obtained in minimum continuous periods of two (2) months at a time. Industrial training carried out as a component of an under-graduate degree programme in engineering may also be similarly considered.

**5.6.4.** Exceptions in **Responsible Experience**

5.6.4.1. The full period of teaching experience at the Universities or other Tertiary Education Institutions in the relevant field of Engineering after the acquisition of a Post Graduate Research Degree of a minimum duration of two years full time or equivalent, may be counted towards the period of responsible experience.

5.6.4.2. For Civil, Electrical , Electronics, and Chemical Engineering candidates a further period of up to six (6) months may be counted towards Design experience as laid down in A.4.1.2, A.6.1.2, A.6.2.3 and A.3.1.2 in addition to the 6 months training period claimed under 5.6.3.1 for the design work carried out for the Post Graduate Research Degree provided the Design content of the Post Graduate Research Course is such that it is equivalent to the work that is normally carried out in a Designs Office and that the calculations, specifications and drawings are submitted as normally required in respect of the Design work carried out in the course of the Research Study. These two periods of six months each will not be considered to run concurrently.

**5.6.5. Exceptions in Counting Responsible Experience in Lieu of Recognized Training**

5.6.5.1. Candidates who are unable to satisfy the Council that the training for the professional review has been obtained in the manner specified, may apply for recognition of a period of experience in a responsible position with exposure to related work, not less than twice the specified period, in lieu of recognized training, except in the case of Civil Engineering candidates, who may claim such experience only in respect of any period of training shortfall beyond the six (06) months of Design Office training as given in A.4.1.2. The candidate should be under the guidance of a Mentor.

5.6.5.2. All Engineering Graduates who serve on the Staff of the Universities or other Tertiary Education Institutions as Lecturers, Asst. Lecturers, Teaching Assistants and Instructors may count such experience up to a maximum of twenty four (24) months in lieu of training. Half this period up to a maximum of twelve (12) months will be counted for training.

## 6. REPORT ON RECOGNIZED TRAINING AND RESPONSIBLE EXPERIENCE

6.1. A candidate is required to submit, along with his application, a Report on his Recognized Training and Responsible Experience.

The main objective of the Report on Training and Experience is to demonstrate that the candidate has achieved the degree of **professional competence** required of a Corporate Member of the IESL and has exercised responsibility at the required level. The Report which will be in the format set out below will take the form of a record of the candidate's training and responsible experience highlighting those activities which demonstrate competence and senior responsibility.

**In the Report the candidate should endeavor to display his/her understanding and practice of the five core competences wherever possible**.

6.2. The following points should be observed when preparing the Report:

6.2.1. It is essential to be as succinct as possible and every effort should be made to confine the report to the number of words specified in Rules 6.3.2 and 6.3.3.

**Note: The word count of each section should be indicated in the report.**

6.2.2. The Report should be written in the first person active voice and must be concise.

6.2.2.1. It is essential to describe as clearly as possible what work has been done by the candidate and what responsibilities the candidate has held. General statements such as "I was involved in the construction of …;,I got the opportunity to work in …..etc." should be avoided since such statements do not help the Panel to accurately assess the work done by the candidate. Such statements should be replaced by "I supervised the construction of …..; I performed the testing of …..; I designed …… etc.).

6.2.2.2. The candidate must describe the tasks in which he has been engaged, whether in investigation, planning, design, construction, operation, maintenance, manufacture or research and education. The account should explain clearly the precise position the candidate has occupied in each case, the degree of responsibility held by him/her, duties discharged by him/her and tasks performed by him/her and should indicate where appropriate the magnitude and cost of works he/she has been engaged in.

6.2.2.3. Wherever possible candidates should indicate the relevance of their work to the activities of the Organization, the size and complexity of the projects or work they have had responsibility for and where appropriate indicate costs and budgets for which they have had overall control.

6.3. The Structure of the Report

The Report which should be submitted in triplicate, should be printed / typewritten on A4 or Letter size paper with double spacing, and comprise three distinct sections, viz. Summary, Training and Experience and Competence Statement. Font should be Book Antiqua size 12 or Arial size 11.

6.3.1. **Summary:** The summary should indicate the periods covered during Recognized Training and Responsible Experience showing durations, tabulated as per Format given in the Annex D. The candidate must detail the inclusive dates of each sub-division of training and experience, and the duration of such periods. A Corporate Member of the IESL (preferably the supervisor or mentor) should sign alongside, from personal knowledge, in certification of each such period.

The certifying officer's name and Class of membership should be clearly stated, together with his/her signature.

6.3.2. **Training and Experience Section:** An account of the significant areas covered during the period of Recognized Training and Responsible Experience. The candidate will, as an introduction to this report set out in chronological order, relevant particulars of his training and experience to date. He will detail the inclusive dates of each sub-division of training and experience, and the duration of such periods.

This section should be not less than 2500 words with a maximum of 3000 words. (Please use the following as a guide: Prior to graduation - not more than 250 words; recognized training – not less than 1000 words; responsible experience – not less than 1000

6.3.3. **Competence Statement:** As indicated in Rule 2.6, applicants will be assessed on five Competences they are required to attain to the expected level. The report, while highlighting the applicant's career progression, should also be structured so that the applicant's attaining of a good level in each competence is highlighted.

This is best done by giving a few examples from the candidate's own experience.

(Please refer to Annex B for details of the Competences, some guidance on writing the Competence Statement and Competence Based Assessment)

This section should be not less than 1500 words with a maximum of 1700 words

6.3.4. The candidate should also submit, with the report, an Organization Chart indicating the candidate's position in the organizational structure. It should show two or three levels of authority above that of the candidate's post and all levels below, in respect of the last three positions held by him/her. If anyone shown in the Organization Chart is a member of IESL or similar Professional Institution, his level of membership should be shown. Representatives of the employers who are corporate members or the head of HR division should certify these Charts.

6.3.5. It is very important that the Report should be well structured and written in grammatically correct English. Wherever possible, the Report should be substantiated with diagrams, tables, graphs, photographs, etc.

6.3.6. The candidate should sign the following declaration at the end of the Report:

**"I declare that the contents of the report furnished by me is based on my own experience and are true and accurate to the best of my knowledge."**

6.3.7. The candidate should obtain the certification from a Chartered Engineer who is one of his/her supervisors or the mentor, regarding the correctness of the Training and Experience Report of the candidate, by signing at the end of the Report.

## 7. DESIGN

7.1. Design is the heart of engineering and it is essential that all engineers, whether or not they ultimately become designers, should at least have an insight into the design process.

Candidates will be required to submit a design supported by calculations, specifications, drawings and priced B.O.Q. where relevant, as set out below.

### 7.1.1. Civil Engineering Candidates

A candidate can obtain the design experience in one of the following three methods

a. Working fulltime In a recognized Design Office for the full period of Design requirement
b. Working fulltime in a recognized Design Office on secondment (released from the employee's own organization)
c. Working part-time at a recognized Design Office, for a period equivalent to the requirement, with the prior approval of the IESL. – the letter of approval and the certificate of attendance should be submitted with the application for the Charter.

7.1.1.1. A Civil Engineering candidate will submit:

7.1.1.1.1. A minimum of 3 sheets of size 'A1' (594mm x 841mm) of detailed drawings of which at least one (1) sheet should be drawn entirely by the candidate. Certified copies of originals drawn by the candidate would also be acceptable. Computer Aided Designs and documentation are acceptable, and here the minimum drawing size should be 'A3' (297mm x 420mm);

7.1.1.1.2. Detailed design calculations relating to a candidate's submitted drawings; or calculations and flow charts, prepared by the candidate for a properly written and executed computer programme; and

7.1.1.1.3. A priced B.O.Q. which refers to a design which will demonstrate the candidate's ability to carry out designs and estimates for substantial projects relating to his field of experience.

7.1.1.1.4. The B.O.Q. should include:

a. Taking-off sheets relating either to one of the submitted drawings or to another drawing not necessarily prepared by him which also must be submitted; and

b. Prices of basic engineering materials, basic wage rates and work norms adopted. (A candidate should be able to demonstrate at the interview justification for rates given in the bill of quantities).

7.1.1.1.5. Any additional information to substantiate his experience could also be submitted.

**7.1.1.1.6. The Design Report should include a statement from the Chartered Engineer, under whose guidance the design is done, confirming that he/she has continuously monitored the preparation of the Design.**

### 7.1.2. Electrical, Electronic and Telecommunication Engineering Candidates

7.1.2.1. All Electrical, Electronic and Telecommunication Engineering candidates must submit –

Either (a) a design supported by analysis, computations, drawings etc. in the form of a report;

or (b) results of a project study in the form of a dissertation normally not less than 6000 words

### 7.1.3 Computer Engineering &Information Technology Candidates

7.1.3.1 All Computer Engineering & Information Technology candidates must submit –

Either (a) a design supported by analysis, computations, diagrams, performance data etc. in the form of a report;

Or (b) results of a project study in the form of a dissertation normally not less than 6000 words describing in detail the design work performed by the candidate related to the project.

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### 7.1.4 (a) Mechanical Engineering Candidates
### (b) Manufacturing Engineering Candidates

**Option 1**

Candidate shall work as an engineer at his/her place of employment doing designs encompassing the theories taught in mechanical engineering under the mentoring of a Chartered Engineer either as a direct superior or as a mentor assigned externally by IESL. The tangible outcomes expected shall be the demonstration of creative skills, competence on scientific theories relevant to the design and ability of identifying activities and materials required for estimating.

**Design reports shall meet the following requirements**

1. Detail Drawings shall be candidate's own,( manual or computer aided) as certified by the chartered engineer (free hand certified sketches accepted if the drawings are done by others than the candidate himself, contributing to the total submission. The degree of details in the drawings shall be adequate for such to be used directly for the manufacture of the designed article or implementation of the process. Designed.

2. Detail design calculations as certified by the chartered engineer to ascertain the competence on application of scientific theories relevant to the design

3. Consideration of the practical manufacturing methods applicable as specified in the detailed drawings.

4. Certified priced Bills of Quantities or Engineer's Estimate to demonstrate the candidate's ability to relate items in the drawings and specifications in to estimating and to identify all activities and items for projects relating to his/her field of experience

**Option 2**

**Design reports shall meet the following requirements**

Candidate shall have followed the CPD course on Mechanical Engineering Design conducted by the IESL and has done an engineering design during the course with a pass at the assessment of the design report. Here too the tangible outcomes are the same with continuous reviewing of the design process at several phases of assessments as an additional feature.

1. Participation for relevant interactive lectures
2. Submission of Design Brief / Problem Statement at initial phase of assessment
3. Submission of Best Solution out of multiple solutions generated at second phase of assessment
4. Submission of Detail Design at third phase of assessment
5. Submission of final report meeting all documents similar to Option 1

**Option 3**

Candidate shall have been involved in the execution of Mechanical/Manufacturing Engineering based project with a submission of a comprehensive report clearly demonstrating his/her role, competence exercised, skills applied and gained, application of own creative skills etc. responsibility held.

Submission of a comprehensive Project Report with number of words not less than 6000 to cover the following mandatory requirements

1. Describe in detail the design work performed by the candidate related to the project

2. Project shall have adequate level of complexity with strong bias on Mechanical /Manufacturing Engineering

3. The report shall demonstrate the applicant's understanding on relevant scientific theories, competence to utilize available technology, giving attention to detail, degree of problem solving ability, degree of creative skills and how the applicant has been successful in interpersonal and teamwork skills.

4. The report shall contain theoretical Engineering analysis supported by calculations, drawings and references, level of contribution for the project by the applicant as well as by any other team members.

5. The report shall also be included with challenges overcome, areas available for further improvements and any comparison of success with similar projects.

### 7.1.5 Chemical Engineering Candidates

7.1.5.1. All Chemical Engineering candidates must submit a chemical engineering design supported by calculations and drawings and with a list of major items and engineering specifications.

7.1.5.2. All documents referred to in this rule should be certified by a Corporate Member under whom the work has been done, or in exceptional circumstances by another Corporate Member from personal knowledge.

7.1.5.3. In the event a candidate cannot satisfy the requirements under clause 7.1.4.1 he may take the Design Project Examination set by the IESL.

7.1.5.4. Computer aided designs and drawings will be acceptable.

**7.1.6 (a) Agricultural and Plantation Engineering Candidates**
**(b) Mining Engineering & Earth Resources Engineering Candidates**
**(c) Textile Engineering Candidates**
**(d) Materials and Metallurgical Engineering Candidates**
**(e) Marine Engineering Candidates**

7.1.6.1 All Agricultural and Plantation Engineering, Mining Engineering and Earth Resources Engineering, Textile Engineering, Materials and Metallurgical Engineering and Marine Engineering candidates must submit –

Either (a) a design supported by analysis, computations, drawings, specifications, etc. in the form of a report;

or (b) results of a project study in the form of a dissertation normally not less than 6000 words.

**7.1.7 Building Services Engineering Candidates**

7.1.7.1 All Building Services Engineering Candidates must submit:

7.1.7.1.1 A comprehensive design report from one of the following building services engineering disciplines listed below.

a) Medium Voltage & Low Voltage power distribution system
b) Mechanical Ventilation , Air conditioning and Heating system
c) Cold Water supply , Hot water supply , Waste Water and Drainage system
d) Fire detection and protection system

The said design report shall contain minimum of following:

- Schematic Drawings, not necessarily to an scale prepared to A1 size, that describes
    - Interconnection of components in a system, that show distribution of the system between building levels, or an isometric-style layout that shows distribution of systems across individual floor levels

- All functional components that make up the system, i.e., plant items, pumps, fans, valves, strainers, terminals, electrical switchgear, distribution and components
- Symbols and line conventions, in accordance with industry standard guidance
- Labels for pipe, duct, cable sizes, etc.
- Components that have a sensing and control function, and links between them—building management systems, fire alarms and other controls
- Major components, so their whereabouts in specifications and other drawings can be easily determined
- Title Block of the drawing

- A set of calculations referring to first principles of Engineering, relevant Engineering standards, Codes of Practices together with a technical comparison between other possible options with justifications for opting to the solution proposed for the project. All computer aided design shall be produced with minimum of one set of specimen calculation for respective areas.

- A1 size layout drawings to a scale of at least 1:100 showing plant, equipment, distribution network and sections wherever required to describe the nature to the best.

- Technical specifications giving cross references to relevant standards and code of practices.

- A priced B.O.Q. which refers to the said design which will demonstrate the candidate's ability to carry out engineering estimates for substantial projects relating to his field of experience.

7.1.7.1.2 Two (02) Engineering Conceptual designs which aims at choosing the best or most desirable design scheme for a building project from two(02) building services engineering disciplines a) to o) below. Each Concept design explanation shall contain not less than 3000 words, to contain references to Engineering standards, schematic drawing, sketches, flow charts, etc. The said two disciplines shall be from a discipline other than that of 7.1.6.1.1.

Calculations, specifications, BOQ etc., shall be annexures to this and shall not be counted to 3000 word sum above.

a) Medium Voltage Power Distribution
b) Low Voltage Power Distribution
c) Extra Low Voltage Systems ( MATV, PA&BGM)
d) Heating, Mechanical Ventilation, Air conditioning
e) Water Supply & Drainage Plumbing systems
f) Rain Water Harvesting, Storm water Drainage
g) Wastewater Treatment
h) Solid Waste Management
i) Day Lighting, Artificial Lighting
j) Escalators and Lifts (Vertical Transportation Systems)

k) Harnessing Solar, Wind and Biomass Energy, Renewable Energy Systems
l) Communications, Telephones and IT networks
m) Security and Alarm Systems (CCTV, ACS, Etc.)
n) Fire Detection and Protection
o) Building Automation system

### 7.1.8 Requirements for Research Candidates

A candidate applying under Research and/or Education Route as per Clause 4.3 of Professional Rules need not submit a separate Engineering Design.

## 7.2 Computer Aided Drawings and Designs

7.2.1 Computer Aided Drawings may be submitted along with sketches and drawings prepared by the candidate. Where Computer Aided Drawings have not been done by the candidate, then sketches prepared by the candidate, which lead to the final drawings, should be attached.

7.2.2 Candidates should be fully conversant with the design theory used and should supplement their submissions with samples of manually computed designs for validation of the computer modeling results.

## 8 ORAL EXAMINATION (PROFESSIONAL REVIEW INTERVIEW)

8.1 An interview will be conducted by a panel of two or more Corporate Members, to assess the candidate's suitability for admission as a Corporate Member of the Institution. The interview will be based on compliance with respect to the five core competences, using the material (report, design work, log book etc.) submitted by the candidate. (Annex B.1)

8.2 The candidate is required to come prepared to make a PowerPoint presentation to demonstrate the achievement of each of the five (05) core competences, which he/she will be required to present to the Review Panel, strictly within 20 minutes.

8.3 During the interview the candidate will be asked to outline the work he has claimed as Responsible Experience and/or aspects of the design submitted by him. The candidate's statement will then be discussed with the aim of ascertaining the degree of professional engineering responsibility carried out by him and his personal contribution.

8.4 The candidate should demonstrate that the nature of his/her work is such that he/she is required to exercise judgment and is professionally responsible for decisions made and is worthy of being a Corporate Member of the Institution.

8.5 The interview will also include a brief discussion of the candidate's professional interests outside his immediate field such as participation in professional and Institution activities.

8.6 The assessment will be based on the quality, content and the duration of the candidate's practical training and experience, and the assimilation by the candidate of the requisite knowledge.

8.7 To be successful at the oral examination, the candidate is required to attain a minimum of Level 3 in competences 1 and 2 and attain level 3 in at least one more competence, and level 2 in the balance two competences. The levels of attainment are detailed in Annex B1.

8.8 All examinations will be conducted in English.

# 9 WRITTEN EXAMINATIONS

## 9.1 Composition of Written Examinations

Candidates shall be required to sit two (02) written papers, Paper A and Paper B, unless they are exempted therefrom. These written papers will be as given below.

Paper A - Professional Experience – To test the candidate's ability to express in writing, matters pertaining to his professional experience.

Paper B – Communication skills, ethics and code of conduct and society related topics. – To assess the candidate's ability to communicate his ideas and his awareness of topics based on Engineering Ethics and Code of Conduct governing Engineers, issues taking place in the society locally and globally, issues not directly engineering related but effect engineers as members of the society, developments taking place around us and future trends.

## 9.2 Paper A
**Professional Experience**

9.2.1 The topics assigned to a particular candidate in Paper A will be based on his own work experience.

9.2.2 Questions on Professional Experience will be directed to ascertain the candidate's ability to express in writing the level of responsibility shouldered and how the candidate has benefited from experience by way of originality of thought and judgment in taking engineering decisions and the solution of day-to-day problems, faced by him.

9.2.3 The essays should follow an ordered structure displaying an awareness of the importance of division into suitable paragraphs. Rough work (if any) may be embodied in the answers but should be struck out when completed.

9.2.4 Written Paper A would be of 1 ½ hours duration. (A candidate is expected to write 1,000 ± 100 words in Paper A). During this time candidates are expected to answer one of the questions set. Candidates will be judged and marked criteria in annexure H.

9.2.5 Minimum mandatory marks for each section as given in the **Annex H** are required for passing the A paper. Hand writing must be legible. The pass mark will be 50%

## 9.3 Paper B
**Communication Skills, Code of Conduct and awareness of events taking place in the Society**

### 9.3.1 Aim and Scope

a) The aim of the written examination is to ensure that the candidate for Corporate Membership of the IESL has made a close study of the Ethics and Code of Conduct governing Chartered Engineers, responsibilities shouldered by professional engineers as members of the society. He is sensitive to issues taking place in other areas of the society such as political, social, economical, and environmental, and also issues taking place globally. The examination also checks whether he is adequately conversant with the technological, and managerial aspects of his profession.

b) A knowledge of the broad topics covered in the syllabus given in the Annex E.1 should be assimilated both by experience gathered during the performance of one's normal duties, and by wide reading and discussion of current topics. The study should be analytical and critical, based on sound reason and judgment, without blind assumptions. Ideas expressed in the answers to the set questions should be well thought out. Candidates should read newspapers, topical journals, publications and reports intelligently and keep themselves abreast of current affairs and modern developments.

c) The IESL also will make available a set of specific topics which are thought to be areas a modern day engineer must be aware of. A small write-up on each of the topic will be provided by the IESL along with sources of additional reference. A few questions will be asked directly on these subject areas and thus candidates are advised to read and understand areas covered by these topics.

d) The candidate should be able to express themselves clearly, concisely and intelligibly in English.

9.3.2 Written Paper B would be of 03 hours duration and will consist of two Sections. Section I will be on, the IESL Code of Ethics and the operation of the IESL whilst Section II will be on topics based on issues taking place in society, both local and foreign, and in other spheres other than engineering that has direct impact on the society. Answering one question from Section1 is mandatory.

Out of the questions in Section II, half of the questions will be on topics of general nature where specific knowledge about the area subjected to the question is not necessarily required to answer them. Candidates are usually asked to analyse, express opinions, comment, giving views, elaborate etc. on certain issues taking place in the society. A candidate who is generally sensitive to what is taking place around him and who can form his opinion about them should be able to answer these questions without difficulty.

The other half of questions (about 04) will be based on specific pre-identified areas, the list of which will be revised and published by the IESL periodically and sufficiently in advance. Candidates can read and gather information about these areas either by reading the write-ups provided by the Institution on them or by self-study.
Candidates can select any mix of questions irrespective of the type in Section II.

9.3.3 The pass mark for this paper will also be 50%.

9.3.4 The syllabus for written Paper B is given in Annex E.

9.3.5 An engineer who has become an Associate Member of the Institution will be permitted to sit the Paper 'B' one year after becoming an Associate Member.

## 10 CONTINUING PROFESSIONAL DEVELOPMENT [CPD]

10.1 Continuing Professional Development (CPD) is the systematic improvement and broadening of knowledge and skill and the development of personal qualities necessary for the execution of professional and technical duties throughout the engineer's working life.

10.2 CPD may be achieved by attending or undertaking:

i. Courses, seminars, workshops and technical meetings organized by the IESL, universities, other professional bodies and course providers;
ii. Conferences and the IESL Annual Sessions;
iii. Post - Graduate study courses from recognized Universities;
iv. Research and post qualification studies;
v. Technical authorship or preparation of lectures for an organized event; and.
vi. Lecturing for those not normally employed as lectures.

10.3 It is recommended that every Associate Member maintains a CPD Record and lists each activity, its duration and date. The aim is to achieve thirty six (36) hours CPD a year.

10.4 Events qualifying for CPD are normally related to the candidate's branch of engineering but events undertaken to broad-base engineering knowledge or improve managerial ability may also qualify.

10.5 CPD courses and lectures conducted by the Institution, together with those conducted by the IESL Provincial Centres can be considered, as will be participation in the Technical Sessions of the Annual Sessions. In addition, educational programmes conducted by other Professional Institutions, and in-house courses run by employers for the benefit of their own staff could be considered.

10.6 An authenticated record of CPD done during the past two years must be submitted with the documentation required for the Professional Review.

10.7 Possessing a CPD record of more than 25 hours will benefit the candidate by reducing the need for satisfying the competences 3 to 5 by (even if all three are at competency level 2, he /she can pass).

10.8 CPD must be continued throughout the engineer's career, be it the Professional Engineer, Chartered Engineer or Associate Member.

# 11 METHOD OF APPLICATION AND RESULTS

## 11.1 Dates of Professional Review Examination

The Professional Review will be held twice yearly, normally in the months of February/March and the months of August/September. The candidates are informed in advance about dates of examination and closing dates of applications and venues, and are required to register, normally on-line.

A candidate will be informed of the dates of the oral examination and A paper examination about a fortnight in advance. Paper A will follow shortly after the oral examination.

Paper B will be normally held in March and September, on dates and times and at locations informed to the candidates in advance.

## 11.2 Application Form and Closing Dates

11.2.1 An application must be made on Form "E", with the appropriate fees. The applications may be either sent by registered post or delivered by hand. Applications may be submitted on line once the system is set up to accept on-line applications.

11.2.2 Application will be received from candidates who are Associate Members of the Institution by 15th December for the February/March Review, or 15th June for the August/September Review.

11.2.3 Candidates should inform the IESL secretariat if acknowledgement is not received within two weeks of the closing date for applications.

## 11.3 Documents to be submitted along with the Application

11.3.1 All documents as stipulated in the application form should be sent along with the application. Originals, as well as certified copies of such documents, as per instructions provided to candidates, must be submitted. The Log Book and record of CPD must be submitted together with the Training & Experience Report.

11.3.2 Documents required to be submitted are shown in Annex F.

## 11.4 Dates for Submission of other Supporting Documents

The closing dates for the submission of documents related to the Design in support of an application as elaborated in Section 7 for the individual disciplines, are 15th January for the February/March Review, and 15th July for the August / September Review, respectively

## 11.5 Fees for Professional Review

11.5.1 An examination fee as decided from time to time by the Council will be levied.

## 11.6 Results of the Professional Review

11.6.1 Each candidate will normally be notified of the results of the Professional Review within two months of the interview.

11.6.2 The performance at the Oral Examination (including documents where applicable), Written Paper 'A' and Written Paper 'B' will be judged separately and independently, and a Candidate could pass in any one of these three items at a time.

11.6.3 The overall achievement of a candidate will be entered in Form IESL PR.1a (Annex H) by the Panel of Examiners, who will also comment as per Notes 1 and 2.

11.6.4 Where a candidate fails the examination, a letter will be sent indicating his deficiencies, and advising him how to make good such deficiencies. There is no limit to the number of attempts a candidate may have for the Professional Review.

## 11.7 Appeals

Candidates may appeal against their results. The Appeal should be in writing and received by the Executive Secretary within 14 days of the results being posted on the IESL Notice Board.

# ANNEX A

## A. Recognized Training Requirements for the various disciplines

All candidates are required to undergo a training for a minimum period of 24 months. The training requirements for different engineering disciplines are given below. The exceptions to these will be as provided for in 5.6.

### A.1. Agricultural and Plantation Engineering

A.1.1. Applicants should have after a successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.1.1.1. A minimum period of 24 months of training which should be made up as follows:

A.1.1.1.1. at least 6 months in an engineering workshop or factory giving the candidate adequate experience in the principal engineering processes such as foundry practice, smithy, machining, welding, fitting, fabrication, heat treatment and wood work, electrical and electronic practice;

A.1.1.1.2. at least 9 months field training on a farm or agricultural station giving the candidate adequate experience in farming operations and cropping programmes both in annual as well as perennial crops, farming, animal husbandry, water management and irrigation practice, farm layout and management; and

A.1.1.1.3. not less than 6 months training in either:

The design, construction and manufacture, installation, testing or maintenance of agricultural and/or plantation machinery including product processing machinery and the operation and maintenance of both field machinery as well as crop processing machinery on a tea/rubber/coconut or sugar plantation or arable farming estate/station, or food processing plant.
or
The design, installation, operation and maintenance of irrigation systems on farms/plantations including gravity, sprinkler and drip irrigation. The management of on-farm irrigation practice involving the use of soil moisture, soil type, crop and weather considerations and systems of soil and water conservation. The practice of land use and land conservation.
or
The design, construction operation, maintenance and environment control of farm structures such as silos, ventilated stores, animal housing, crop processing structures, crop dryers, crop preservation, transport and packing systems, for both perishable as well as non-perishable agricultural products; and

A.1.1.1.4. the balance period to make up an aggregate of 24 months in either A.1.1.1.1 or A.1.1.1.3 above.

## A.2. Building Services Engineering.

A.2.1. Applicants should have after a successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.2.1.1. A minimum of 24 months training in aggregate in any of the following major fields:

a) Medium Voltage & Low Voltage power distribution system, Electrical Installations, Extra Low voltage system
b) Mechanical Ventilation, Air conditioning and Heating system
c) Cold Water supply, Hot water supply, Waste Water and Drainage system
d) Fire detection and protection system

A.2.1.2. The training may be in areas of planning, design and development, estimating, construction, manufacture, installation, commissioning, Inspection and testing, operation and maintenance. Engagement in all the above areas will not be required, but a broad training not restricted to a narrow field is required.

## A.3. Chemical Engineering

A.3.1. Applicants practicing in the broad area of Chemical Engineering should have after a successful completion a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.3.1.1. a minimum period of 12 months being in at least two (2) of the following four process and plant aspects:

Process and Plant Evaluation (technical & economic); Process, Plant and Equipment Design; Process and Plant Construction (materials &methods); and Process and Plant Operation; and

A.3.1.2. a further minimum period of 12 months basic training in the following aspects. Selection of any four (4) aspects from the following will bring the total to six (6):

Chemical Engineering Research; Process and Plant development; Quality assessment of process materials; Instrumentation control and computer application; Technical sales marketing and contract negotiations; Economics, Accounting and other management services; Administration & Management and Project Management; and Teaching Chemical Engineering in accredited Degree courses.

A.3.2. Applicants practicing in the field of Environmental Engineering should have their field training as specified below:

A.3.2.1. A minimum of 24 months recognized training made up of:

A.3.2.1.1. a minimum of 12 months recognized training in the Environmental Engineering Field, in a relevant industrial organization, academic institute or research organization in preferably more than one of the following areas:

Construction of water or wastewater treatment plant; operation of water or wastewater treatment plant; construction or operation of air pollution control systems; construction or operation of solid waste management systems; environmental pollution control programs such as soil remediation, lake or river restoration, sanitation; environmental monitoring programs or energy management programs; environmental impact assessments and strategic environmental assessments; Waste minimization and cleaner production programs in Industries; Sites where sustainable construction methods are practiced predominantly, such as those aimed at LEED certification.

A.3.2.1.2. a minimum of additional 12 months training, engaged in one or more of the following areas:

Design work of any of the systems mentioned above, and doing a design and drawing under the direct supervision of a Corporate Member
Full time or part-time research work, resulting in a Project Report or a Thesis, under the direct supervision of a Corporate Member to be submitted for the Professional Review.

## A.4. Civil Engineering

A.4.1. Applicants practicing in the broad area of Civil Engineering should have after successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.4.1.1. a minimum of 24 months of training of which a minimum of 12 months recognized training in Civil Engineering construction, in as many Civil Engineering branches as possible of which at least 6 months should be continuous; and

A.4.1.2. a minimum of 6 months training which should be continuous, engaged in designs work in a Design Office, and doing a design and drawing under the direct supervision of a Corporate Member, to be submitted for the Professional Review.

A.4.1.3. Those who are unable to satisfy the requirement laid down in A.4.1.2 above may complete a Comprehensive Design Project under a Chartered Engineer approved by the Council. The Rules for Comprehensive Design Projects is given in Annex G. The Comprehensive Design Project should have the prior

approval of a Designs Engineer appointed for this purpose. A Chartered Engineer can at any one time supervise a maximum of only 4 candidates.

On completion of the project the candidate should present his design for the Professional Review to be assessed by a three member panel which will have two Designs Engineers.

A.4.1.4. Please note that Civil Engineers should have at least six (6) months' experience in a Design Office in addition to the training requirements laid down in A.4.1.2, to make up a total of 12 months Designs Office training and experience. A candidate shall also have 12 months of responsible construction experience. (Ref. section 5.3.4)

A.4.2. Applicants practicing in the field of Geotechnical Engineering will be required to satisfy the requirement for Civil Engineering as specified in Section A.4.1. The field training will be as specified below;

i. Geotechnical Investigations; embankment construction and associated operations; foundation excavation and improvement / treatment; material testing/quality control; excavation and stabilization of slopes (rock/soil); or
ii. Construction of underground chambers; tunneling in rock and /or soil with associated operations such as excavation, drilling and blasting, mucking operations, lighting, ventilation, de watering etc; stabilization of tunnel walls, doweling, rock bolting, shotcreting, grouting, concrete lining, steel lining, etc.; or

iii. Geotechnical Investigations; material testing; Engineering aspects of landslides including investigations, monitoring, counter measures for controlling and stabilization of slopes; earth retaining structures.

Note : In (i), (ii) and (iii) above, engagement in all the areas will not be required, but a broad training not restricted to a narrow field is required.

A.4.3. Applicants practicing in the field of Environmental Engineering should have their field training as specified below:

A.4.3.1. A minimum of 24 months recognized training made up of:

A.4.3.1.1. a minimum of 12 months recognized training in the Environmental Engineering Field, in a relevant industrial organization, academic institute or research organization in preferably more than one of the following areas:

Construction of water or wastewater treatment plant; operation of water or wastewater treatment plant; construction or operation of air pollution control systems; construction or operation of solid waste management systems; environmental pollution control programs such as soil remediation, lake or river restoration, sanitation; environmental monitoring programs or energy management programs; environmental impact assessments and strategic environmental assessments; waste

minimization and cleaner production programs in industries; sites where sustainable construction methods are practiced predominantly, such as those aimed at LEED certification.

A.4.3.1.2. a minimum of additional 12 months training, engaged in one or more of the following areas:

Design work of any of the systems mentioned above, and doing a design and drawing under the direct supervision of a Corporate Member
Full time or part-time research work, resulting in a Project Report or a Thesis, under the direct supervision of a Corporate Member to be submitted for the Professional Review.

## A.5. Computer Engineering and IT

A.5.1. Applicants should have after a successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.5.1.1. A minimum of 24 months recognized training in aggregate in one or more of the following major fields:

Software engineering, computer science, information systems, multimedia, software architecture, systems software, computer systems, computer architecture, networks, IT security, electronic systems, and any others that may be included from time to time by the Council.

A.5.1.2. The training may be in areas of planning, design &development, prototyping, industrial systems, system integration, networking, manufacture, installation, commissioning, inspection &testing, operation and maintenance, type approvals, etc. Engagement in all the above areas will not be required, but a broad training not restricted to a narrow field is required.

Considering the rapidly changing nature of Computer Engineering and IT, an applicant should demonstrate knowledge and awareness of current techniques and technologies (within 3-5 years prior to the date of application) in the chosen major field of training.

A.5.1.3. They should within this training period, have a minimum of three months training in the use of hardware and software tools, testing and measuring instruments (hardware and/or software), provided they have not had such training prior to graduation.

## A.6. Electrical, Electronic and Telecommunication Engineering

A.6.1. Applicants practicing in the field of Electrical Engineering should have after successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.6.1.1. a minimum of 24 months training in aggregate in one or more of the following major fields:

Electrical power systems, electrical machines, control systems, power electronics and automation systems, and any others that may be included from time to time by the Council.

A.6.1.2. The training may be in areas of planning, design and development, estimating, construction, manufacture, installation, commissioning, inspection and testing, operation and maintenance. Engagement in all the above areas will not be required, but a broad training not restricted to a narrow field is required.

A.6.1.3. They should, within this period, also have 3 months of training in the use of basic hand tools and machine tools in a workshop if they have not had such training prior to graduation.

A.6.2. Applicants practicing in the field of **Electronic Engineering** should have after successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.6.2.1. A minimum of 24 months training in aggregate in one or more of the following major fields:

Electronic devices and circuits, semiconductors, electronic systems, control systems, power electronics, communications, and any others that may be included from time to time by the Council.

A.6.2.2. The training may be in areas of planning, design and development, estimating, construction, manufacture, installation, commissioning, inspection and testing, operation and maintenance. Engagement in all the above areas will not be required, but a broad training not restricted to a narrow field is required.

Considering the rapidly changing nature of Electronic Engineering, an applicant should demonstrate knowledge and awareness of current techniques and technologies (within 3-5 years prior to the date of application) in the chosen major field of training.

A.6.2.3. They should within this training period, have a minimum of three months training in the use of electronic workshop tools, testing and measuring instruments in a workshop, provided they have not had such training prior to graduation.

A.6.3. Applicants practicing in the field of **Telecommunication Engineering** should have after a successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.6.3.1. A minimum of 24 months recognized training in aggregate in one or more of the following major fields:

Telecommunication transmission and switching, networks, electronics, network analysis, instrumentation, control systems, value added services, service delivery, and any others that may be included from time to time by the Council.

A.6.3.2. The training may be in areas of planning, design &development, prototyping, industrial systems, system integration, networking, manufacture, installation, commissioning, inspection &testing, operation and maintenance, type approvals, etc. Engagement in all the above areas will not be required, but a broad training not restricted to a narrow field is required.

Considering the rapidly changing nature of Telecommunications Engineering, an applicant should demonstrate knowledge and awareness of current techniques and technologies (within 3-5 years prior to the date of application) in the chosen major field of training.

A.6.3.3. They should within this training period, have a minimum of three months training in the use of electronic workshop tools, testing and measuring instruments in a workshop, provided they have not had such training prior to graduation.

## A.7. Marine Engineering

A.7.1. Applicants should have after a successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.7.1.1. A minimum of 24 months recognized training in aggregate in one or more of the following sectors/areas:

Ship repair and construction in on-shore, off-shore or sub-sea marine engineering fields,
Design and/or construction of ships, crafts, marine vessels and structures,
Service on-board sea going ships, vessels and crafts, and any other that may be included from time to time by the Council.

A.7.1.2. The training may be include operation and maintenance, planning, design &development, estimating, construction, manufacture, installation, commissioning, inspection &testing, and marine/ship surveys in above sectors/areas. Engagement in all the above areas will not be required, but a broad training not restricted to a narrow field is required.

## A.8. Materials and Metallurgical Engineering

A.8.1. Applicants should have after a successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.8.1.1. a minimum of 12 months training in one or more areas in the following major fields:
Metallurgy - Foundry practice, metal forming, fabrication, welding, heat treatment and surface treatment;
Ceramics - Ceramic processing, manufacturing methods, operation and maintenance of machinery;
Polymers - Polymer processing, manufacturing methods, operation and maintenance of machinery;
Construction Materials – Construction material processing, manufacturing methods, operation and maintenance of machinery;
Nano materials - Processing, manufacturing methods, characterization, design, operation and maintenance of equipment;

(Construction Materials included at the request of Materials Engineering graduates. These are focus areas in their study program, and they are/will be employed in these sectors.)

and

A.8.1.2. the balance 12 months training may be in areas of planning, design and development, selection of materials, testing, quality control, measurements and inspection techniques and failure analysis in one of the major fields. Engagement in all the above areas will not be required, but a broad training not restricted to a narrow field is required.

A.8.1.3. Materials/Metallurgical Engineers should submit a thesis on problems related to or encountered by those industries. The thesis should have been approved by two referees.

## A.9. Mechanical Engineering

A.9.1. Applicants should have after a successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.9.1.1. A minimum of 24 months recognized training made up of:

A.9.1.1.1. At least 6 months in a Mechanical Engineering workshop in a recognized training institute approved by IESL, giving the candidate adequate exposure to the applications of Mechanical Engineering through a combination of several aspects out of those given below:

Engineering Materials – types & properties; Material Forming – ferrous & non-ferrous foundry practice, machining, milling, extruding, CAD, CAM, CNC, 3D printing etc.; Fitting; Materials Joining – welding, fastening,

adhesives, etc.; Design & Manufacture of components; Installation & Commissioning; Control Systems; Electrical & Electronic applications; Measurement, calibration & Inspection techniques; Computer Applications;
Major overhaul of Gas turbines, IC engines (Power generation, Locomotive, Marine, Aviation)

and

A.9.1.1.2. at least 18 months in Company Specific Training, which will extend the general training received in A 9.1.1.1 and help in focusing towards the special needs of the employing organization in order that candidate plays an effective part in that business. This module with Mechanical Engineering overtones will expose the candidate to:

Process Engineering; Production Management; Maintenance Management; Energy Management; Project Management; CAD / CAM applications; Advanced Metrology & NDT techniques; Financial & Commercial appreciation; Personnel & Human Resources issues; and Health, Safety and Environmental needs.

## A.10. Manufacturing Engineering

A.10.1. Applicants should have after a successful completion of a recognized Engineering Degree or the IESL examinations in full or equivalent:

A.10.1.1. A minimum of 24 months training in aggregate in one or more of the following major industrial activities in a manufacturing environment in one or more recognized engineering organizations. This training may include 6 months of training obtained during undergraduate years in a Sri Lankan, IESL accredited or recognized four year degree program. While it is not mandatory to have all activities covered, newer industrial activities could supplement those ( example: instead of foundry practice, 3D Printing ) :

Manufacturing Methods: Machining, Fabrication , Foundry, Welding, Fitting,, Heat Treatment, Surface Treatment, CNC tools, robots, etc.

Manufacturing Processes: Lean, Six Sigma, Job Shop, Batch Production, Line/Mass production and any other that may be included from time to time by the industry.

Quality Systems; TQM, ISO, etc.

Sustainable Practices: OSHA, EPA, NCRE Systems, Modern Irrigation and Energy saving technologies, etc.

Designs: CAD / CAM, FEA, etc.

Project Management. PMBOK and modern project management software tools.

Financial Mgmt.: basic exposure to tools and methods.

Maintenance: Boilers, HVAC, Heavy Construction machinery, Vehicle fleets

A.10.1.2. The training may be in areas of Planning, Design & Development, Estimating, Construction, Manufacture, Installation, Commissioning, Inspection & Testing, Operation and Maintenance. Engagement in all the above areas will not be required, but a broad training not restricted to a narrow field is required.

A.10.1.3. They should within this training period, have a minimum of three months training in the use of basic hand tools and machine tools in a workshop, provided they have not had such training prior to graduation.

## A.11. Mining Engineering and Earth Resources Engineering

A.11.1. Applicants practicing in the field of **Mining Engineering** should have after successful completion of the IESL examinations in full or a recognized Engineering Degree or equivalent:

A.11.1.1. a minimum period of 24 months of training of which at least 12 months should be continuous practical training in one of the following branches:

i. Mining operations where tunneling, shaft sinking, raising, winzing, stopping and securing of ground are practiced; or
ii. Mineral processing where crushing, grinding, screening, floatation, gravity separation, etc. are practiced; or
iii. Quarrying where bench drilling, bench blasting, muck loading, crushing and grinding are practiced; or
iv. Oil well drilling and associated work, exploration drilling, production drilling and drilling for water.

Note: In (i), (ii), (iii) and (iv) above, engagement in all the areas will not be required, but a broad training not restricted to a narrow field is required.

A.11.2. Applicants practicing in the field of **Earth Resources Engineering** should have a minimum period of 24 months of training of which at least 12 months should be continuous practical training in one of the following branches:

i. Operations where geophysical methods, geochemical methods, drilling, etc. are practiced for mineral exploration, ore/ mineral reserve estimation, extraction of ore/mineral resources, etc.; or
ii. Operations in the ocean/ ocean floor where sampling, drilling, scanning, etc. are practiced to explore for resources, estimate resource reserves, extract resources, etc.; or
iii. Use of remote sensing techniques and associated field and other techniques for operations to explore for resources, estimate reserves, monitor resource reserves, document data in appropriate instruments, etc.; or

iv. Use of remote sensing techniques and associated field and other techniques in hazard/ disaster situations for operations to investigate and monitor hazard/disaster, plan and implement disaster mitigation/ remedial measures

Note: In (i), (ii), (iii) and (iv) above, engagement in all the areas will not be required, but a broad training not restricted to a narrow field is required.

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## A.12. Textile Engineering

A.12.1. Applicant should have after successful completion of an approved course for an Engineering Degree or equivalent:

A.12.1.1. A minimum of 24 months training in a relevant industrial organization, academic institute or research organization to achieve recognized work related experience as follows:

A.12.1.1.1. at least 12 months period of training in a relevant industrial organization, academic institute or research organization in the areas of:

Production, distribution, dyeing and finishing of any manmade fibre type; drawing, preparation, spinning of natural fibres; production of textile films; production, distribution, dyeing and finishing of yarns and threads; production, treatment, dyeing and finishing of textile fabrics, woven, knitted and non-woven; textile fabric, yarn or thread dyeing and finishing; cords and braids; and technical Textiles including medical, composites and structure.

A.12.1.1.2. At least 12 months period of training in a relevant industrial organization, academic institute or research organization in the areas of:

Process design/development; production planning and control; capacity planning; scheduling and loading of the production line; work place engineering; time and work study engineering; Computer Aided Design(CAD); and garment dyeing and washing

# ANNEX B

**Competence Based Assessment for IESL Professional Review**

Registration and recognition as a Chartered Engineer is open to any engineer who can demonstrate competence to perform professional work to the necessary standards, and commitment to:

- Maintain that competence
- Work within professional codes
- Participate actively within the profession

Competence includes the knowledge, understanding and skills that underpin performance. Engineers become competent through a mixture of education and professional development.

In keeping with international advancements in the recognition and registration of engineering professionals, the IESL proposes to introduce a competence-based assessment, as a part of the existing Professional Review, for engineers seeking registration as Chartered Engineers. The present PR consists of the Interview, Paper 'A' and Paper 'B'. The competence-based assessment will be an integral part of the Interview.

The IESL competence-based assessment will focus on five core competences namely,

1. Understanding of engineering principles
2. Practical application of engineering knowledge
3. Managerial Involvement
4. Interpersonal skills
5. Professional conduct

These competences will be the backbone of the Interview and the assessment panel will be required to assess for each of the five generic competences, how the candidate measures up to the competence level expected of a Chartered Engineers. The five generic competences and their key elements are given below:

1. **Understanding of engineering principles**
   - Maintain a sound theoretical approach to technology
   - Identify, comprehend and apply appropriate engineering knowledge
   - Introduce / exploit emerging technologies
   - Promote innovation and technology transfer

2. **Practical application of engineering knowledge**
   - Identify, define, investigate and analyse complex engineering problems
   - Participate in or specify research, design and/or development
   - Plan and implement solutions
   - Evaluate solutions
   - Identify what has been learnt from the activity

3. **Managerial Involvement**
   - Experience of effective project planning
   - Manage and plan budgets, task, people and/or other resources
   - Develop the capability of staff to meet current technical and managerial needs
   - Bring about continuous improvement through quality management

4. **Interpersonal skills**
   - Effective use of oral and written communication
   - Ability to present and discuss ideas and plans
   - Ability in team building and negotiating activities
   - Good manners and respect for others

5. **Professional Conduct**
   - Conduct engineering activities to an ethical standard as laid down in the relevant standard
   - Application/management of safe systems of work
   - Familiar with relevant legislation in respect of safety, health and the environment
   - Examples of application of knowledge gained through CPD courses
   - Examples of knowledge gained through CPD courses useful for future applications
   - Demonstrates involvement with IESL and local community activities

**Writing the Competence Statement**

As mentioned in Section 6.3.3 of the PR Rules, the candidate for the PR should highlight these competences in the Report on Recognized Training and Responsible Experience he/she will submit. The candidate should fill up the following set of tables as a summary of the Report:

**Competence 1: Understanding of Engineering Principles**

| **Key elements of competence** | **Sections giving examples of meeting competence 1.0** |
|---|---|
| • Maintain a sound theoretical approach to technology | |
| • Identify, comprehend and apply appropriate engineering knowledge | |
| • Introduction / exploitation of new technologies | |
| • Promote innovation and advances in technology | |

**Competence 2: Practical application of engineering knowledge**

| **Key elements of competence** | **Sections giving examples of meeting competence 2.0** |
|---|---|
| • Identifies, defines, investigates, analyses complex engineering problems | |
| • Participates in or specifies research,<br>• design and developments | |
| • Plans and implements solutions | |
| • Makes reliable predictions of outcomes | |
| • Exercises sound professional engineering judgement | |

| | |
|---|---|
| • Identifies what has been learnt from the activity | |

**Competence 3: Managerial Involvement**

| Key elements of competence | Sections giving examples of meeting competence 3.0 |
|---|---|
| • Management of significant engineering • works | |
| • Responsibility for making decisions | |
| • Identifies and assesses engineering risk | |
| • Ensures team members have appropriate • skills | |
| • Contribution to continuous improvement • via quality management | |

**Competence 4: interpersonal skills**

| Key elements of competence | Sections giving examples of meeting competence 4.0 |
|---|---|
| • Demonstrates written and oral • communication skills | |
| • Ability to present and discuss ideas / plans | |
| • Treats people with respect | |
| • Ability in team building and negotiating • activities | |

**Competence 5: Professional conduct**

| Key elements of competence | Sections giving examples of meeting competence 5.0 |
|---|---|
| • Compliance with codes and rules of • conduct of the profession | |
| • Recognise the social, cultural and environmental impact of professional engineering activities | |
| • Application / management of safe systems • of work | |
| • Familiar with relevant legislation in • respect of health, safety, risk and the • environment | |
| • Displays commitment to undertake CPD | |
| • Demonstrates involvement with IESL, • other professional organizations and local community activities | |

## ANNEX B.1

**INTERVIEW ASSESSMENT FOR THE CHARTERED ENGINEER**

The five competences of the candidate are assessed on a scale of 1 to 4 using the following criteria:

Level 1 – performs activity with significant supervision; little or no individual responsibility

Level 2 - performs activity in a range of situations; supervision required in more complex situations; some individual responsibility or autonomy.

Level 3 - performs activity in some complex and non-routine situations; significant responsibility or autonomy; can oversee the work of others

Level 4 - performs activity in a wide range of complex and non-routine situations; significant individual responsibility or autonomy; can involve others in the activity.

Final Assessment of PR Interview

| **Competence** | | **Minimum Competence level to be Achieved for passing** | |
|---|---|---|---|
| 1.0 | Demonstrates knowledge and understanding of engineering principles | 3 or 4 | Required |
| 2.0 | Demonstrates practical application of engineering knowledge and expertise | 3 or 4 | Required |
| 3.0 | Leadership and Management | 2,3 or 4 | At least one (01) of these is required to be at Level 3 or 4 |
| 4.0 | Communication and inter-personal skills | 2,3 or 4 | |
| 5.0 | Professional conduct | 2,3 or 4 | |

# ANNEX C

## C. Mentoring System

### C.1. Appointment of Mentors

C.1.1. Mentors could be appointed, with the approval of the IESL in respect of any Student/Associate Member seeking to become a Corporate Member of the IESL.

C.1.2. Mentors will be Corporate Members of the Institution, with a minimum of five (5) years post-Charter experience, or any other Engineering Institution recognized by the IESL.

C.1.3. In organizations having graduate engineers in their employment, the Mentor can be appointed from amongst its staff or outside (as a consultant). A Mentor has to be appointed in respect of each student/AM in the organization. The Mentor should preferably be the immediate supervisor, who should be a Chartered Engineer. However, the concurrence of the IESL must be obtained for such appointment.

C.1.4. The IESL at the request of a student/AM can appoint a Mentor from amongst its membership. Where the IESL has been asked to appoint a Mentor by a student/AM, such student/AM may be required to make a payment (annual fee) to the IESL for this service.

C.1.5. The IESL may place a limit on the number of Students/AMs any person could be a mentor to. This is with a view to ensuring that the Mentor can meet his obligations towards his mentee.

### C.2. Responsibility of a mentor

C.2.1. Mentors should acquaint themselves of the training requirements for admission to the class of Members. They should study the training and experience programs of each student/AM in their charge and advice as to its adequacy. They could in turn advice the organization to amend its proposed plan for training/experience of a candidate, in keeping with the aims and objectives of the organization.

C.2.2. They should have regular meetings with the student/AM they are expected to mentor, where they counsel the student/AM regarding the requirements of the IESL, test and advice the student/AM about shortcomings in his communication skills, indicate areas where the student/AM should acquire additional skills, etc.

C.2.3. They should report to the IESL about the student/AM in relation to his training (as against the total proposed), experience (as against the total proposed), communication skills, knowledge of general engineering (engineer in society), language etc. This may be done on a standard format (B 4), and every six months.

C.2.4. The Mentor should be one of the proposers or supporters in the application for membership of his mentee.

C.2.5. The mentor of a particular candidate should not serve in the PR panel of that candidate.

## C.3. Responsibility of the IESL

C.3.1. The IESL will arrange meetings for mentors at regular intervals to
- Appraise the Mentor of the IESL requirements (existing or new)
- Get feedback in the operation of the mentor scheme

These meetings will be chaired by senior members of PR panels.

C.3.2. Maintain records of student/AMs reports submitted by the mentors. Such reports should be made available to the PR panels for their use.

C.3.3. To consider the performance of candidates as Mentors when evaluating applications to the class of Fellows. Maintain records of candidates including their performance, mentored by the mentor.

C.3.4. Appoint a Mentor at the request of a student/AM member, from the list of persons who have offered their service as mentors. Monitor the reports and make payments to the mentor in such cases.

Sheet # …..…

**C.4.** **TRAINEE EVALUATION REPORT**

To be submitted by Mentor every six (6) months in respect of the performance of the Mentee

Name of Trainee: …… IESL #…….....……..

Address: ……...……...…..

Employment: ……...……

Discipline: …….....… Age: …….. Gender: Male / Female

Training at: ……..…..…….…….

Name of Mentor: …….....IESL #…..……..

Address: …….....……..

Period of mentoring under review: From ….....…….. To .....…….

**TRAINING**

**Category**: Induction / General Engineering Training / Directed Objective Training

Please comment on:

1. Mentee's performance during the specified training period, emphasizing on practical skills development, appreciation of engineering principals, social responsibility, and general attitude.

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2. Oral and written communications (English)

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3. Any other relevant points

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4. Mentee's comments with regards to training during specified period

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| | | |
|---|---|---|
| ..... | ..... | ..... |
| Signature of Mentor | Date | Signature of Mentee |

Note - If required, please use additional sheet of paper for continuation of comments, taking care to number and sign it.

# ANNEX D

## D. Format for Summary of Training vide Rule 6.3.1

***FORMAT FOR SUMMARY OF RECOGNIZED TRAINING & RESPONSIBLE EXPERIENCE***

I. Recognized Training Prior to Graduation (Vide Rule 5.6.3.2)

Total …… Months

| Place of Work/ Name of Project | Fulltime work station[1] | Inclusive Dates | | | Designation and Role[2] | Under whom[3] | Signature of certifying officer[4] |
|---|---|---|---|---|---|---|---|
| | | From | To | Duration (months) | | | |
| | | | | | | | |
| | | | | | | | |

II. Recognized Training after Graduation (Vide Rule 5.2.2)

Total …… Months

| Place of Work or Name of Project | Fulltime work station[1] | Inclusive Dates | | | Designation and Role[2] | Under whom[3] | Signature of certifying officer[4] |
|---|---|---|---|---|---|---|---|
| | | From | To | Duration (months) | | | |
| | | | | | | | |
| | | | | | | | |

Breakup of total into Different Types of Training as per ANNEX A.

(a)
(b)
(c)

III. Responsible Experience (Vide Rule 5.3)

Total …… Months

| Place of Work/ Name of Project | Full time work Station[1] | Inclusive Dates | | | Designation and Role[2] | Under whom[3] | Signature of certifying officer[4] |
|---|---|---|---|---|---|---|---|
| | | From | To | Duration (months) | | | |
| | | | | | | | |
| | | | | | | | |

Notes

1. If part time it should be clearly stated with the frequency. Relevant documents such as copies of transfer letters or letter from H.R. should be submitted.
2. Role- Client or employer/ Engineer/ Consultant/ Contractor should be indicated.
3. Name & the designation of Supervising Chartered Engineer
4. Signature & the seal /Membership Number. Candidates should obtain the certification from the immediate supervising Chartered Engineer. In the exceptional circumstances if the immediate supervisor is not a chartered engineer or not available in the country or not living, certification can be obtained from next chartered Engineer in line in the organization. The candidate has to justify the situation.

IV. Exceptions (Vide Rule 5.6)

Total ……. Months

| | No. of Months |
|---|---|
| (a) Recognized Training – Rule 5.6.3.1 | ……..…… |
| (b) Responsible Experience – Rule 5.6.4 | ……..…..……. |
| (c) Experience in Lieu of Training – Rule 5.6.5 | ……..…… |
| Total | ……..…… |

.

***FORMAT FOR SUMMARY APPLICABLE TO RESEARCH CANDIDATES***
***Vide Rules 5.3 & 5.4***

| | Name & Signature of Person Certifying |
|---|---|
| Name of Post Graduate Qualification and of Recognized Institution | ……..…… |
| Engagement in Research work at time of application and name of Recognized Institution | ……..……. |
| Period of engagement in engineering, giving name of responsible position held & inclusive dates | ……..……. |
| Approved course of full time post graduate study followed, with inclusive dates and duration.. | ……..……. |
| Duration of post graduate research degree, with inclusive dates | ……..……. |

Duration of research carried out whilst holding post of teacher in an approved degree course, giving inclusive dates. ……..……..

Duration in a Recognized Research Institution with inclusive dates. ……..

Practical Experience if any: total duration in years with inclusive dates ……..

No. of Years engaged in:

(i) Investigation ……..

(ii) Planning ……..

(III) Design ……..

(iv) Construction ……..

# ANNEX E

## E. Syllabi for Paper B (Vide Rule 9.3) :-

1. Communication skills - The art of communicating clearly, concisely and intelligibly in English. The art of structuring an answer. The beginning, the body and the conclusion, presentation and the flow, transition from one point to another, proper use of paragraphs, writing grammatically correct English, spellings, writing answers to the point etc.

2. Ethics and Code of Conduct. (Refer IESL publications on the subject).

3. Issues effecting the Society – Social, Economic Political factors, Gender Issues, behavioural sciences, National Development, Industry, Commerce, Role and responsibility of engineers as a member of the society and as a professional, public perception of engineers, strengths , opportunities and threats to the profession, role of the civil society, environmental issues, emerging technologies, International affairs, Governments national policy and Sri Lankan economy, major infrastructure projects taking place and planned for future etc.

4. Also refer the list of specific topics published by IESL from time to time on which few questions will be directly based upon.

(Candidates are encouraged to read National papers, the IESL Newsletter (Sri Lanka Engineering News), Central Bank Reports and watch television programmes on business and finance.) A list of books recommended for reading could be obtained from the Secretariat on application.

### ANNEX E I - SAMPLE TOPICS

| | Main Topic | Sub classifications (Sample) |
|---|---|---|
| 1 | Environment | • Green House gas emission & Global warming |
| | | • Concept of Carbon Trading |
| | | • CFC gas emissions & ozone layer depletion, |
| | | • Montreal Protocol and Kyoto protocol for environmental Protection. Refusal by some countries for complying with these Protocols |
| | | • Concept of Sustainable Development |
| | | • Urbanization/Solid Waste generation |
| | | • Industrialization/ Harmful effluent generation |
| | | • Role of Local Authorities in solid waste management/harmful effluent management, |
| | | • Cleaner production |
| | | • 3R concept/Energy Audits. |
| | | • Natural Resources Scarcity/Management |
| | | • Over exploitation of hill country against high environmental sensitivity |
| | | • Potential for the development of north, east and the southeast |

| | | |
|---|---|---|
| | | • Sri Lanka: Maritime boundaries, Exclusive Economic Zone, Resources within the territorial waters |
| | | • Ancient Heritage Vandalism/Preservation |
| 2 | National Policy and SL economy. | • Forms of Government/Concept of good governance. Is it a myth? |
| | | • Government economic policy, |
| | | • Fiscal policy. |
| | | • What is growth and development of an economy |
| | | • Balance of Payment/Inflation, |
| | | • Education, Employment, Unemployment |
| | | • Social Harmony, Peace initiatives, War and terrorism |
| | | • Major constraint in resolution/Haegamony by developed countries |
| | | • Major Infrastructure development projects in the pipeline ,their objectives, justification and associated constraints |
| | | • Constitution, Government Structure and proposed Electoral reforms. |
| | | • Bribery and Corruption, the worst enemy? |
| 3 | Emerging Technologies | • Nano technology and its applications, |
| | | • Biotechnology and its applications, |
| | | • Intelligent Transport, Fuel cells, Hybrids |
| | | • Artificial intelligence, |
| | | • Robotics, |
| | | • Potential of Genetic engineering. Is it a double edged weapon? |
| 4 | International affairs | • Role of the UN, UN Charter |
| | | • Super powers , neo colonialism, third world |
| | | • Main International conflict zones and there effects to SL & other countries. |
| | | • Globalization, world trade,, Role of multinational companies, International Patents, Surreptious Protectionisms by developed world, GATT, WTO, who benefits and how? |
| | | • Regional trade agreements; SAPTA, SAFTA, who benefits and how |
| | | • Threats to the survival of Planet earth and its inhabitants. |
| | | • Disarmament and Nuclear nonproliferation, judicial use of limited resources |
| | | • Human right issues, (freedom of expression, political freedom etc). Hegemonic applications by developed world |
| | | • Method of collective bargaining, Role of Trade/Student Unions, Misuses of this avenue for ulterior motives |
| 5 | Quality management systems. | • ISO, SLS, HACCP, GMP.TQM,5S |
| 6 | Engineering profession | • Gaining Professional/legal status for the practising Engineers, Professional Charter, Registration of Engineers |
| | | • Membership of Washington Accord Countries, Accreditation of Engineering Courses, |
| 7 | Behavioural | • Leadership, |

| | | |
|---|---|---|
| | and Social sciences | • Motivation, |
| | | • Decision making, |
| | | • Conflict resolution, |
| | | • Negotiation, |
| | | • Contract Law, |
| | | • Consultation , Consensus, Compromise |
| | | • Alternative dispute resolution procedures (arbitration and adjudication.) |
| | | • Gender issues/Equal opportunities |
| | | • Moral Conduct/Professional Integrity |

# ANNEX F

## F. Documents to be submitted with Application. (Vide Rule 11.3.2)

F.1. Three (3) copies of the Report on Recognized Training and Responsible Experience (Vide Rule 6) – Four (4)copies required from CDP candidates

F.2. Three (3) copies of the Summary of Recognized Training and Responsible Experience (Vide Rule 6.3.1) – Four (4)copies required from CDP candidates

F.3. Original and one (1) copy of the letter of appointment/transfer relevant to the periods indicated under Training and Experience after graduation,

F.4. Original and one (1) copy of the Degree certificate or equivalent and original and one (1) copy of the transcript, if not already submitted.

F.5. Original and one (1) copy of the Birth Certificate, if not already submitted.

F.6. The Log Book (Vide Rule 5.5)

F.7. Three (3) copies of the record of CPD (Vide Rule 10)

F.8. IESL may request for any other relevant documents if required.

Note: Original certificates and transcript will be returned to the candidate.

# ANNEX G

## G. Comprehensive Design Project

### G.1. Objective:

The Objectives of the Comprehensive Design Project is to ensure that the engineer:

1. Is able to identify problems and suggest feasible solutions, mainly in the field of engineering. Where no such solutions are within his reach, he should be capable of re-defining the problem in a manner that will enable a solution;
2. Can identify and solve a design problem of adequate complexity that synthesis engineering knowledge, and taking into consideration optimization of the available resources;
3. Will show the capability to place problems in context and identify the appropriate principles of engineering to be used, and is trained to find solutions that are feasible in the long-term;
4. Is able to submit a final design that should be adequately detailed to enable undertaking of construction;
5. In carrying out his function, will take into account ethical, environmental and social considerations; and
6. Is able to ensure that the design he undertakes, to solve a problem, is the simplest and the most cost-effective one. The embedded energy and energy used in operation must also be minimized.

It is recognized that the expectations of a Comprehensive Design Project by a practicing engineer differs substantially from design courses followed by undergraduates, which allow them to synthesize the disparate subjects they learn under each discipline. The design problem is generally given and the student is expected to come with a good solution comprising design calculations, detailed drawings of components, assembly etc.

After graduation, problems are not generally presented but found and the approach has to match the resources in hand. Therefore a clear statement of problem identification and the reason for selecting the particular approach adopted is necessary. This involves a great deal of thinking and placing the problem in context.

### G 2. Instructions to be followed when undertaking Comprehensive Design Project (CDP)

G 2.1 General:

G 2.1.1 Candidates applying for CDP for the Professional Review (PR) should have at least 3 years of Engineering Experience after graduation.

G 2.1.2 Comprehensive Design Projects could be submitted under the following disciplines.

i. Civil Engineering

ii. Chemical Engineering

iii. Mechanical Engineering

iv. Manufacturing Engineering

v. Building Services Engineering

vi. Agricultural and Plantation Engineering

vii. Electrical, Electronic and Telecommunication Engineering

viii. Computer Engineering and information Technology

G2.1.3 The candidate should submit a design brief with the application, prior to continuing with the design to seek approval that the design chosen is of adequate complexity to meet the expectations of the review panel.

G2.1.4 Candidates attached to organizations having a **recognized Design Office** will not be allowed to apply for CDP. Candidates should submit documentary proof signed by the Head of the Institution/Organization in which he is working, stating that recognized design office is not available.

**G 3. Supervisor**:

G 3.1 Candidates shall select a suitable supervisor for the Comprehensive Design Project. The selected supervisor shall have at least 10 years of post-chartered experience with minimum 05 years Design Office experience.

G 3.2 He shall hold / have held the position of a Senior Design Engineer in a recognized Design Office for a period of not less than 3 years and while therein should have been engaged in supervising the designs of Trainee Engineers.

G 3.3 Shall be easily accessible to the candidate to obtain timely supervision for the project.

**G 4. Design Project**

G 4.1 Candidates shall submit an original design or an improvement of an existing design, clearly stating the problem and why the particular approach was selected among feasible alternatives. (Shall not be a reproduction of a Design which has already been done by another Engineer.)

G 4.2 The design should place emphasis on optimizing the resources available and be of adequate complexity to synthesize engineering knowledge.

G 4.3 The Final Design should be adequately supported by design calculations and detailed drawings, with specifications to enable construction/manufacture.

G 4.4 The report must be written in a clear manner and adequate calculations must be included.

G 4.5 Any references quoted must be directly linked to the body of the report. If Internet is accessed for information the date of access must be given in the References.

**G 5 Design Project Progress Monitoring**

G 5.1 All candidate should successfully complete the CPD course on Design, conducted by the IESL with minimum 80% attendance, prior to the commencement of the design process (in disciplines where such CPD programs are available).

G 5.2 For civil engineering candidates, the Design should include substantial R.C component as well irrespective of field of specialization.

G 5.3 Regular contact and meeting the mile-stones set by the supervisor are essential to meet the required progress. Candidate should strictly adhere to the program submitted at the commencement.

G 5.4 Candidate shall report progress to the Supervisor regularly and make entries regarding the progress of the Design which shall be authenticated by the supervisor at least once in two weeks.

G 5.5 The progress report for each two-week block should be submitted to IESL in regular two weeks interval. This report should be sent or handed over to IESL, with the certification from the supervisor, not later than a week (within 3rd week) at least electronically or fax. However, the originals shall be handed over to the IESL once a month, within the first week of the subsequent month.

**Failure to submit two consecutive bi-weekly reports on time will automatically lead to the cancellation of the approval for the given design process.**

G 5.6 Candidate should submit copies of all manual calculations, sketches etc., properly numbered, to the IESL at least once a month along with the progress report.

G 5.7 From the date that the IESL informs the candidate to proceed with the design, it shall be completed within two years, but not less than one year.

G 5.8. Candidate shall apply for the Professional Review examination within one year of completion of the Design.

G 5.9 Interim evaluation after 6 months from the commencement will be done by an IESL panel consisting of two members in order to ensure that the candidate is proceeding with the design while adhering to the guidelines and according to the programme. It is the responsibility of the candidate to request from IESL for the interim evaluation from the IESL.

G 5.10 Final design will be checked fully by one of the two design panel members and only on his recommendation, the candidate should be sent to the 3 member panel of evaluation.

G 5.11 In case of cancellation of approval given for the CDP due to the fault of the candidate such as failure to submit two consecutive bi-weekly reports or failure to complete the design within two years' time, either the candidate should commence a fresh design, different from the previous one with a fresh approval or select normal route if the design office facilities become available.

G 5.12 No candidate will be allowed to present the CDP design for the P.R interview other than at a special interview fixed under CDP route.

G 5.13 Any act of misrepresentation, misleading or providing a copy of others' work by the candidate will be liable to suspension from sitting for P.R examination for 2-5 years period.

G 5.14 Declaration should be given by the candidate about the originality of his design and to agree to abide by the rules and regulations at the commencement of the CDP process.

## G 6 Guidelines for Chartered Engineers Supervising Comprehensive Design Projects

A Chartered Engineer who offers to supervise the Comprehensive Design Projects of Professional Review Candidates shall adhere to the following:

G 6.1 The supervisor shall be in the same field or same sub field as the field in which the Design of the candidate is to be carried out (example : In case of Civil Engineering the sub fields are Roads, Buildings, Irrigation etc.) The supervisor's knowledge realm must fall within the areas covered in the design brief and expert help must be channeled where necessary.

G 6.2 The supervisor shall undertake to supervise candidates who are stationed in a place which is easily accessible for supervision.

G 6.3 Shall not supervise more than Four(4) Engineers concurrently.

G 6.4 The supervisor should devote adequate time and guidance to help the candidate.

G 6.5 The supervisor should ensure that the candidate does sufficient work on his own so that the candidate could ably defend his design at the final review.

G 6.6 The overall aspects of the design that go beyond analysis and calculation must be checked so that the design is of professional standard.

G 6.7 The supervisor must advice the candidate to carry out sufficient reference work.

G 6.8 Shall ensure that the candidate reports his progress on the design work to the IESL at least once in two weeks through the biweekly report along with the relevant rough calculation sheets checked & certified by the supervisor and maintains a log book with entries authenticated by him

G 6.9 Shall ensure that the Candidate's Design is not a reproduction of a design already done by another engineer. Supervisor has to certify this in writing at the end of the report.

G 6.10 Shall ensure that he/she has no contractual work relationship with the candidate (Eg : Client – contractor- consultant..) and he is a non-related candidate.

G 6.11 Supervisor shall ensure that the candidate achieves milestones as per the program submitted to accomplish the design within a time frame so that the final report could be completed in the allocated time.

G 6.12 The supervisor must certify that adequate work has been carried out by the candidate to entitle him to make his final submission.

G 6.13 Shall ensure that the candidate completes his / her design within a period of not less than one year but not more than 2 years from the date being informed by the Institution to proceed with the Design proposal. If the Design is not completed within two years, it may get cancelled.

G 6.14 Supervisor shall give a final report in the form of a certification, to the IESL.

## G 7 Guidelines for Evaluation Panel

G 7.1 The Panel of Evaluators must ensure that:

a. The objectives set out in the design brief are met in the final submission and complied with the initial program submitted.
b. The analysis of the problem and development of the solution are sound and employ the relevant theoretical knowledge.
c. All results obtained using analysis by computer packages have been validated.
d. Drawings are of acceptable professional quality and adequately prepared to enable construction.
e. Due attention is paid to costing and safety aspects.
f. The report is written in a clear style with adequate calculations to support the design.
g. The report is backed by adequate reference material suitably indexed.
h. The calculations, sketches etc. along with the bi-weekly submissions are checked and the work done is original.

G 7.2 The members of the panel should beforehand agree among themselves on a marking scheme for the different aspects of the submission.

G 7.3 Additional data submitted covering aspects of sustainability, impact of social aspects and other relevant peripheral issues faced by the candidate in his working life, can be given additional credit.

G 7.4 The review panel may suggest improvements that are necessary for the acceptance of the report.

## G 8 Exceptions

In the case of,

i. Electrical, Electronic and Telecommunication Engineering

ii. Computer Engineering and information Technology.

It is also noted that the Professional Review Rules of IESL provides two options for the above candidates; a comprehensive design report or a dissertation of a project study undertaken. Those

candidates who opt for the Comprehensive Design Project can use the guidelines and rules as applicable for other candidates, given above.

In the case of those candidates opting for dissertation of a project study, they would most probably be required to engage themselves in one of the ongoing projects in the organization rather than formulating their own projects, since such projects are usually capital intensive. As such, these candidates may not be able to provide a project plan in advance, as it may be out of their control. However, with the guidance of the supervisor, the candidate shall be able to forward a comprehensive introductory essay describing the scope and expected outcomes of the project with the associated project details.

Instead of reporting every two weeks, such candidates may be allowed to submit quarterly reports of the progress of the project, specific milestones reached, and the problems encountered, with the certification of the supervisor. The Final Report shall be a comprehensive one with the declaration of the supervisor certifying that the candidate has achieved the required competencies expected to be acquired from the said project.

# ANNEX H

| THE PROFESIONAL REVIEW "A" PAPER | TOTAL MARKS FOR KEY TOPICS | MANDATORY MINIMUM FOR PASSING | MARKS FOR SUB TOPICS |
|---|---|---|---|
| **1. Structuring and Presentation** | **20** | 10 | |
| 1.1 Structuring | | | 5 |
| 1.2 Completeness | | | 5 |
| 1.2 Presentation | | | 5 |
| 1.3 Neatness | | | 5 |
| **2. RELEVANCE and knowledge** | **40** | 20 | |
| 2.1 Relevance of the Contents | | | 20 |
| 2.2 Knowledge | | | 20 |
| **3. CLARITY & ARGUMENT** | **20** | 10 | |
| 3.1 Clarity | | | 10 |
| 3.2 Argument | | | 10 |
| **4. GRAMMAR, SYNTAX & EXPRESSION** | **20** | 10 | |
| 4.1 Grammar and syntax Expression | | | 10 |
| 4.2 punctuation | | | 5 |
| 4.3 Spellings | | | 5 |
| **TOTAL** | **100** | 50 | 100 |