

**THE HONG KONG INSTITUTION OF ENGINEERS
ENGINEERING GRADUATE TRAINING SCHEME “A”**

MODEL TRAINING GUIDE

ENERGY ENGINEERING

Model Training Guide (MTG)

The Model Training Guide is a guide to Companies on the practical experiences considered relevant in the formal training of potential Professional Engineers.

Training Programme (TP)

The Training Programme is the plan prepared by a Company which is designed to meet the experiences listed in the MTG and to meet the objectives set out in the Record of Objectives. This ‘plan’ is presented for approval on Form TD1 Part 2 as a part of the Assessment/Reassessment procedures.

Training Period - Nominally 2 years

The length of the training is based on meeting the objectives and not determined by time. The times shown below are indicators only of the time that a trainee would normally take to meet the relevant objectives.

Training Aim

It is important to note that the Scheme “A” Graduate Training is designed to be a fast track by which a graduate can obtain full professional status. The training therefore covers both Technical and Professional matters.

Continuing Professional Development (CPD)

An implicit part of the Scheme “A” training is related to CPD which should be an integral and relevant part of the development of the graduate trainee.

Training Programme Content

1. Introduction (1 week in total)
 - 1.1 Information about the company:
 - (a) Business nature/operations, size and history
 - (b) Vision, mission and values
 - (c) Services, products, markets and competitors
 - (d) Organization structure & functions and communication system
 - (e) Locations and layout of infrastructures and facilities
 - (f) Health, safety, quality and welfare policies
 - (g) Energy and environmental management systems
 - (h) Joint-consultation arrangement

1.2 Information about training programmes, prospects & career development:

- (a) Specialist and management skills
- (b) Employment potential
- (c) Work of related disciplines
- (d) Individual and team work
- (e) Sources of information, guidance and support
- (f) Continuing professional development (CPD) plan
- (g) Training plan and scheduling

2. Professional & General (Ongoing)

2.1 Information, understanding and/or development of the following:

2.1.1 HKIE Profile

- (a) History, role, organization, functions and activities
- (b) Development links with HKIE

2.1.2 Professionalism

2.1.3 Ethics and Codes of Conduct

2.1.4 Occupational Health and Safety

2.1.5 Energy Resources, Environment, Climate Change and Sustainability

2.1.6 Energy and energy-related environmental policy, economics and laws

2.1.7 Leadership and Management

2.1.8 Oral and written Communication

2.1.9 Personal development and lifelong learning

2.1.10 Technological Development

3. Engineering Practices, Design, Projects and Energy issues (12 months in total):

3.1 Workshop Training: Knowledge and use of hand, power and machine tools; Appreciation of sources and properties of engineering materials; Exercising of health and safety measures at works etc.

3.2 Energy Issues: Knowledge of energy supply, demand and security issues and their associated environmental impacts in a global and societal context; Development of (i) innovative technologies and/or (ii) creative business/works practices that can respectively address energy scarcity and/or reduce energy consumption to tackle air pollution and climate change

3.3 Design: Research, investigation, design and development of energy components or products or equipment or plants or facilities

3.4 Work Processes and Procedures: Manufacturing, construction, installation, inspection, testing, commissioning, operation and maintenance of energy and associated plants and facilities

3.5 Project Management: Monitoring and control of cost, programme, quality, safety, etc., efficient use of energy and protection of environment

4. Engineering Administration & Management (6 months in total)

- 4.1 Interpretation and preparation of project/plant/equipment specifications and drawings
- 4.2 Familiarisation of Tendering procedures and undertaking tender evaluation and contract administration
- 4.3 Performing budgeting and estimation of labour, materials, manufacturing, installation, transport and life cycle costs
- 4.4 Conducting project scheduling and resources management
- 4.5 Preparation of Reports, procedures and manuals of construction, installation, testing, commissioning, operation and maintenance
- 4.6 Conducting technical presentation, sales and contract negotiation
- 4.7 Knowledge of general administration including financial management, human resources, social awareness, marketing technique etc.
- 4.8 Development of communication skills in verbal and written Chinese and English

5. Direct Objective Training (6 months in total)

This is training in any one or more of the activities outlined Section 3 or 4, which leads to an initial appointment as an engineer. It should also aim to develop skills and knowledge needed to make an effective start. Special courses dealing with the particular technologies having a bearing on future work may be necessary during training.

Specific project(s) should be assigned to the trainee according to the work nature of the trainee in this period and the emphasis should be on the applications of the essential knowledge and skills acquired in the previous phases of the training programme. The trainee is expected to report the progress at scheduled intervals.

Regular reviews with the trainee should also be arranged together with the supervisor(s) to the trainee so as to ensure the progress to be in line with the project objective(s). The trainee shall be required to submit the final project report before the completion of the training programme so that an overall review on the performance of the trainee may be conducted.

N.B.

- 1. The minimum training period must not be less than 24 months.
- 2. The programme set out is for guidance only but substantial departure should not be made. Employers should endeavour to provide training to their trainees in as many areas as possible as is appropriate to the sector of employment.
- 3. This guide should be read in conjunction with Section 3 of the Membership Admission Requirements booklet.

4. During their training, each trainee is required to maintain a Graduate Training Log Book, CPD Logbook and Record of Objectives.