

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

MODEL TRAINING GUIDE

BUILDING 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. Common Core Objectives (Continuous developments throughout the programme)
 - 1.1 HKIE Activities
 - (a) History, role and organisation
 - (b) Developing links with HKIE
 - 1.2 Professionalism
 - 1.3 General Personal Development
 - 1.4 Personal Qualities/Demonstrating
 - 1.5 Occupational Safety & Health (S&H)
 - 1.6 Environment
 - 1.7 Communication
 - 1.8 Human Resources

- 1.9 Leadership & Management
- 1.10 Own Organisation (Scheme “A”)
- 1.11 Technology/Business
- 2. Core Objectives in Building Engineering
 - 2.1 Introduction (1 week)
 - (a) Company history, structure, management system etc.
 - (b) Computer applications
 - (c) Safety policies, current legislation
 - 2.2 Producing Work (51 weeks)
 - (a) Contract administration, Procurement management, Design management
 - (b) Drawing/Information control
 - (c) Record keeping
 - (d) Information co-ordinate and checking
 - (e) Setting out
 - (f) Appreciation in the use of equipment/plant
 - (g) Planning work schedule
 - (h) Check work done/payment
 - (i) Resources management including materials, plant and equipment, manpower, and sub-contractors
 - (j) Safety work practices and process control
 - (k) Quality control, TQM, ISO various standards (9000 and 14000 series)
 - (l) Site Quality Assurance Systems
 - (m) Supervision on site – the roles of various parties, Site supervision Plan, role of RPE
 - (n) Coordinate with Client/Consultant/Sub-Contractor
 - (o) Interface of Building services installation and builder’s work
 - (p) Document Management System
 - (q) Engineering fundamentals, Practice and Design, including falsework, formwork and temporary work
 - (r) Foundation and Geotechnical Engineering Work
 - 2.3 Planning Work (12 weeks)
 - (a) Identifying and defining a problem accurately
 - (b) Evaluation of alternative solutions
 - (c) Knowledge of national and international Standards, Codes of Practice, Legislation, Practice Notes, Technical Memoranda etc.
 - (d) Able to produce the solution to a problem
 - (e) Problem solving
 - (f) Environmental assessment to problem solving
 - (g) Technical specifications
 - (h) Costing of the solution, Cost Benefit Analysis, Life cycle costing, Value Engineering
 - (i) Safety consideration in planning work
 - (j) Programming method, awareness of computer-aided programming
 - (k) Method statement and programming in different stages
 - (l) Resources Planning
 - (m) Environmental Planning

- 2.4 Pre-Contract Work (8 weeks)
 - (a) Company's tendering process
 - (b) Understanding the tendering process
 - (c) Tender presentation/assessment stages
 - (d) Budgeting on projects
- 2.5 Post-Contract Work (Optional 4 weeks)
 - (a) System and concept use
 - (b) Measure and check work done for claims/charges/payment at Final Account
 - (c) Budgeting Review on projects

3. Specific Objectives

The Specific Objectives will be complementary in a more detailed way to the core objectives. Guidelines are given as follows:

- 3.1 Engineering Management and Administration
- 3.2 Defect checking during the construction and handover stage, testing procedures
- 3.3 Arrangement of Fire Service and Occupational Permit Inspection Projects
- 3.4 Projects
- 3.5 Customer liaison and services, maintenance work
- 3.6 Work Study Techniques
- 3.7 Safety and Environmental Audit
- 3.8 Quality Assurance System and ISO9000 Quality System

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.