

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

**MODEL TRAINING GUIDE**

**AIRCRAFT 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 (minimum 1 week in total)
  - 1.1 Information about the company

Size, history, subsidiaries, products, services, markets, competitors, management structure, management functions, people communications, locations of facilities and their layout, health & welfare of employees, joint management-staff consultation arrangements, etc.
  - 1.2 Information about training programme, prospects and career development
    - (a) Training programme and objectives.
    - (b) Continuing Professional Development (CPD).
    - (c) Obligation, discipline and career development.

- (d) Relationship with HKIE, Engineering Supervisor and Tutor (if appropriate).

2. Engineering Practice and Application (minimum 51 weeks in total)

2.1 Engineering Practice and Application Part I (minimum 10 weeks)

2.1.1 Aircraft Engineering Practice

- (i) The concept of airworthiness
- (ii) Hong Kong SAR aviation legislation
- (iii) U.S. and E.U. aviation legislation
- (iv) Air Operator's Certificate requirements and practices
- (v) Design / Production organisation requirements and practices
- (vi) Maintenance organisation requirements and practices
- (vii) Continuing Airworthiness Management
- (viii) Human Factors
- (ix) Safety Management Systems
- (x) Electrical and electronic fundamentals
- (xi) Digital Techniques and electronic instrument systems
- (xii) Material and hardware
- (xiii) Maintenance Practices
- (xiv) Aeroplane / helicopter aerodynamics, structures and systems
- (xv) Gas Turbine Engine / Piston Engine / Propeller

2.2 Engineering Practice and Application Part II (minimum 20 weeks)

2.2.1 Design / Maintenance Operations (choose 2.2.1.1 or 2.2.1.2)

2.2.1.1 Design

- (1) Airworthiness codes on aircraft systems / engines / structures
- (2) Type approval process appreciation
- (3) Classification of major / minor change and repair
- (4) Major / minor changes in aircraft systems / engines / structures
- (5) Major / minor repairs in aircraft systems / engines / structures
- (6) Design document compilation
- (7) Design liaison with aircraft / engine manufacturers
- (8) Critical Design Configuration Control Limitations
- (9) Ageing Aircraft and ageing aircraft systems
- (10) Safety assessment
- (11) Maintenance programme and reliability

2.2.1.2 Maintenance Operations

- (1) Certificate of Airworthiness process
- (2) Certificate of Release to Service process
- (3) Maintenance programme process

- (4) Reliability programme process
- (5) Design / maintenance liaison with aircraft / engine manufacturers / aviation authorities / operators
- (6) Maintenance check schedule and package management
- (7) Production planning and control
- (8) Defect control and management
- (9) Aircraft, engine and structure standard maintenance practices
- (10) Aircraft / engine systems and structures design appreciation, modification, repair, overhaul, replacement and inspection
- (11) Critical Design Configuration Control Limitations
- (12) Ageing Aircraft and ageing aircraft systems

3. Aircraft Engineering Administration and Management Techniques (minimum 26 weeks in total)

3.1 Technical and Commercial Leadership

- (a) Maintenance error management
- (b) Quality management
- (c) Lean sigma for improvement
- (d) Project management
- (e) Financial management
- (f) Supply chain management
- (g) Knowledge management
- (h) Occupational Safety & Health management
- (i) Environmental management

3.2 Interpersonal Skills

- (a) Leadership for results
- (b) Effective team building
- (c) Effective communication
- (d) Effective presentation skills

4. Objective Training (minimum 26 weeks in total)

This is training in any one or more of the activities outlined in Section 2 and 3, 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. Where appropriate, computer applications should be considered at a priority.

**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.