

# The Hong Kong Institution of Engineers (HKIE)

## Engineering Graduate Training Scheme “A”

## Why is training necessary for an engineering graduate?

- The fresh graduate is not the finished ‘product’ but at the stage of having acquired the relevant fundamental theory and is now in need of putting this ‘theory’ into ‘practice’.
- The Training Stage is where this necessary practical experience is acquired to supplement and reinforce the theory gained in the degree.

## The Aim:

**To Produce Good and Competent Professional Engineers**

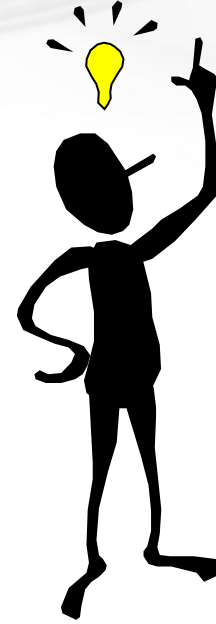
# Scheme “A” Training Philosophy

- Learning by Experience
- Training experiences should be relevant and of the right level
- Trainees practically and personally involved, in a hands-on way
- Emphasis on real work helps ensure the training experiences are relevant and trainees become an active part of the ‘production’ process
- Careful balance between commercial (natural company) interests and the training needs
- Practical experiences to be reinforced by CPD
- Multi-disciplinary elements involved in training to widen the trainee’s experiences

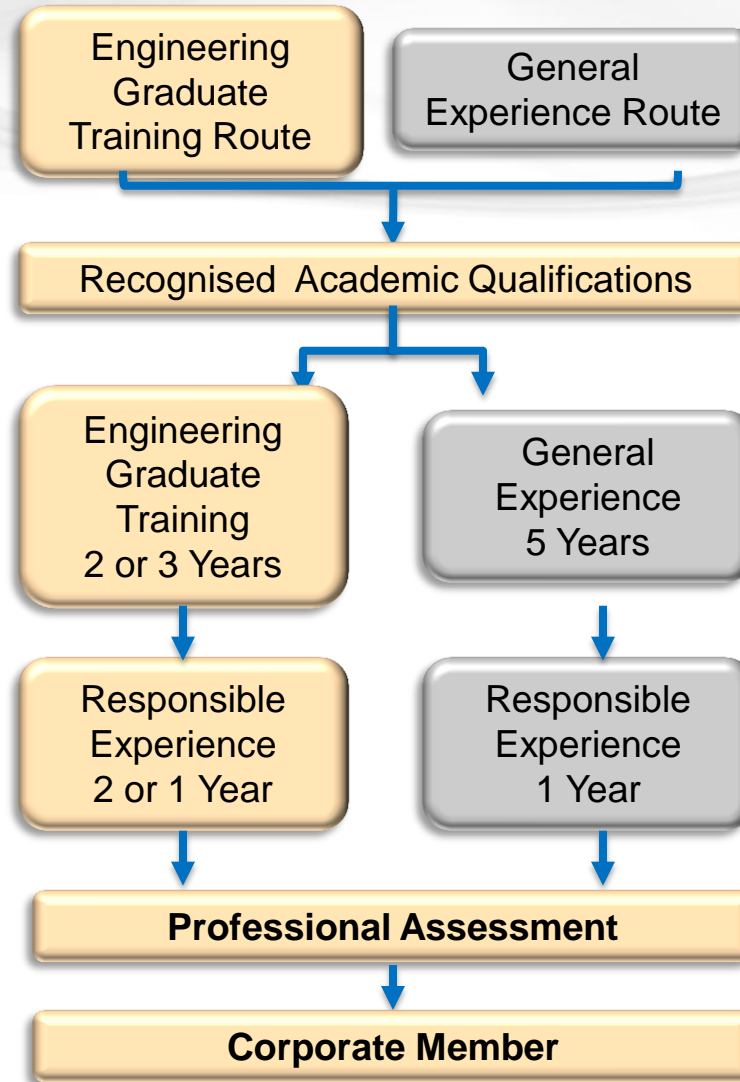
# Qualities Perceived to be Required of Professional Engineers

**(i.e. a Corporate Member of HKIE)**

- (a) Technical Competence**
- (b) Managerial & Leadership Abilities**
- (c) Business & Communication Skills**
- (d) Ethical & Professional Awareness**
- (e) Social Responsibilities**

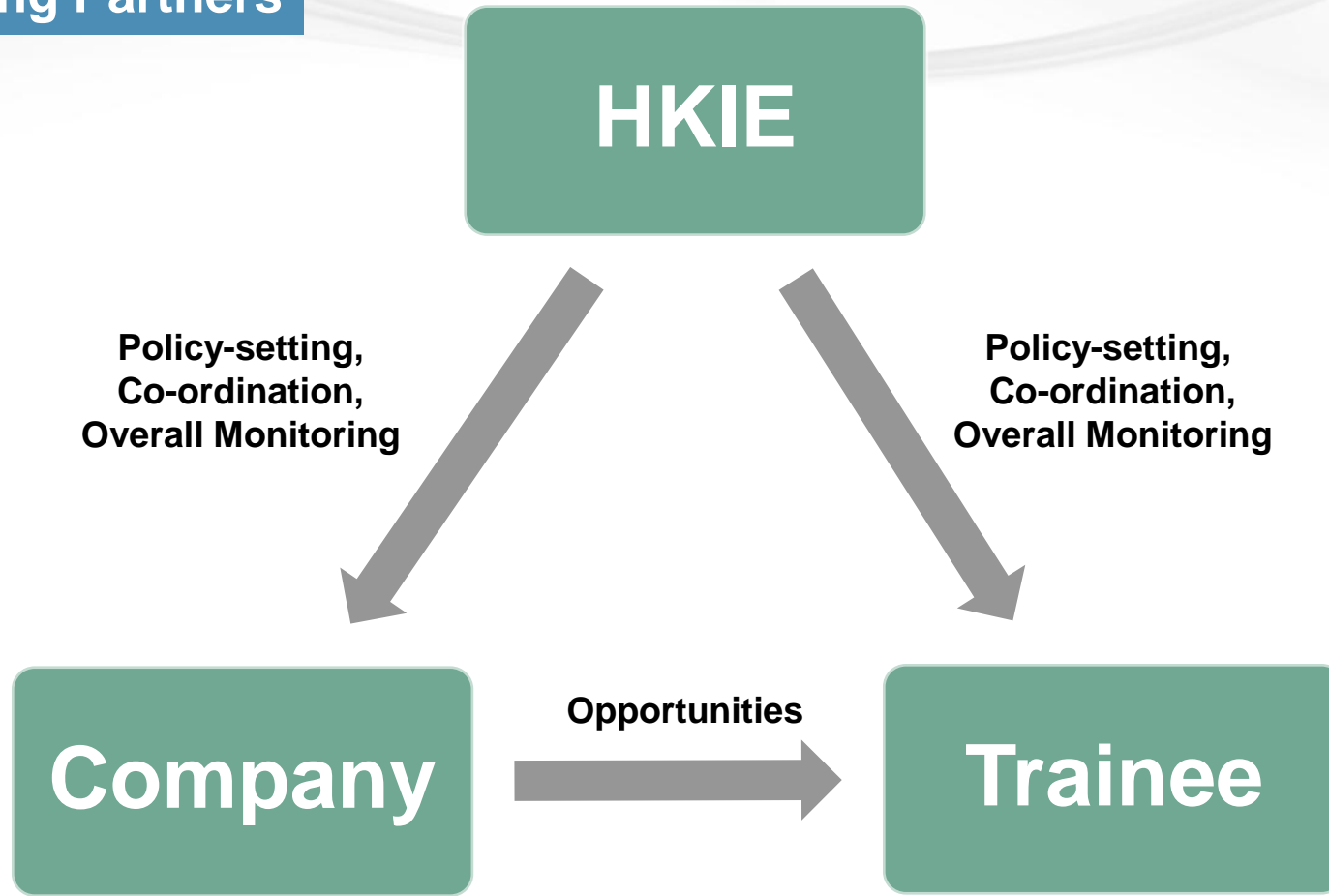


# Routes to Corporate Membership



# Relationship between Companies, Trainees and the Institution

## Training Partners



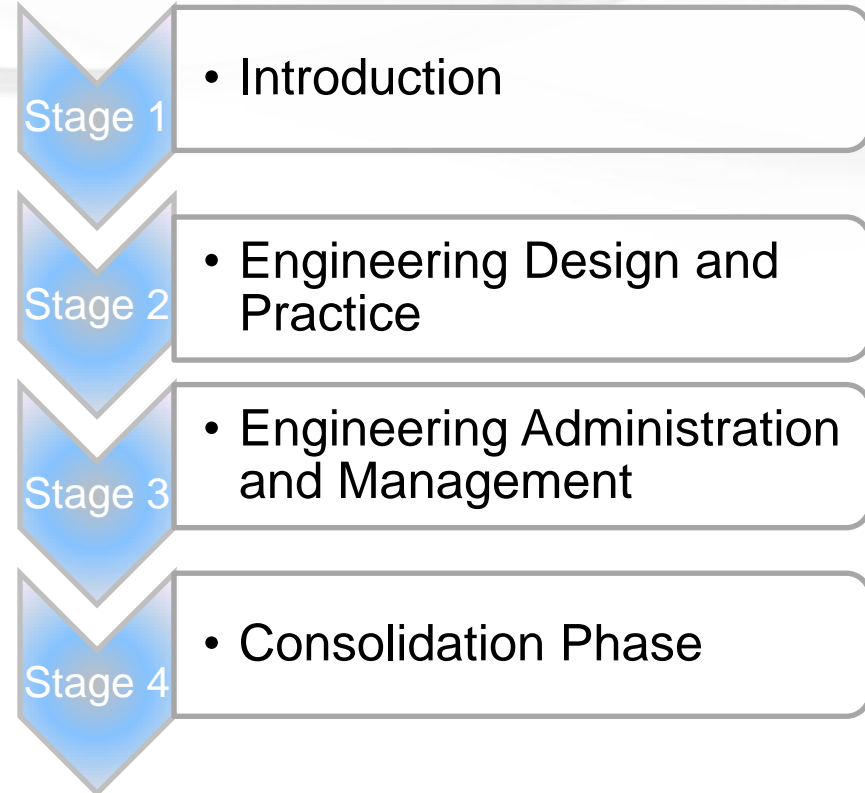
# Essential Elements in Scheme “A” Training

- **Training Programme (TP)**
- Training by Objectives (T-by-O)
- Training Staff
- Trainees
- Assessment and Re-assessment
- Continuing Professional Development (CPD)



# Training Programme

Place where Training will be done/based	Training Activity	Objective Training Record Reference	Nominal Time Planned (Weeks)
Administration Department, Hong Kong office	<p><b><u>1. Introduction</u></b></p> <p>1.1 Information about the company            a) Policies and Procedures            b) Safety and Health policy</p> <p>1.2 Information about Training            a) Content and schedule            b) Source of guidance</p>	Common Core Obj. 1.2, 1.5, 1.8, 1.10, 1.11	1
Manufacturing Engineering Department (PRC Mainland)	<p><b><u>2. Engineering Practice</u></b></p> <p><b>Part 1</b></p> <p>2.1 Basic Engineering Practice            a) Knowledge and use of hand/power tools and machine tools.            b) Safety precautions and regulations in workshop</p> <p>2.2 Production Process            The Trainee will be trained in at least 2 of the following activities            a) Plastics processing</p>	<p>Core Obj 1.1</p> <p>Core Obj. 1.2, 1.3</p> <p>Specific Obj. 1.1</p>	<p>16</p> <p>4</p> <p>4</p>



# Essential Elements in Scheme “A” Training

- Training Programme (TP)
- **Training by Objectives (T-by-O)**
  - **Common Core Objectives**
  - **Core Objectives**
  - **Specific Objectives**
- Training Staff
- Trainees
- Assessment and Re-assessment
- Continuing Professional Development (CPD)

# Training-by-Objectives (T-by-O)

- Considered as a logical and systematic approach to make assessment of trainee progress.
- Trainee must demonstrate the type of learning or skill expected for each objective.
- All the required Training Objectives must be met by a trainee to the satisfaction of their ES, in order for the trainee to be considered to have successfully completed the training scheme.

# Training-by-Objectives (T-by-O)

## Specific Objectives

## Core Objectives

## Common Core Objectives

1. Professional & General	Code	ES initials and Date of Assessment			
		G	K	E	C
<b>1.8 Human Resources Management</b> (a) Employment criteria (b) Labour Deployment (c) Staff Training	K				
<b>1.9 Leadership &amp; Management</b> (a) Qualities required of a leader (b) Responsibilities of a leader (c) Management skills (d) Relationship between good leadership and good management skills (e) Teamwork and Partnering Skills	K				

## Common Core Objectives -

General objectives to be met by all trainees in all disciplines.

## Core Objectives -

Objectives to be met by all trainees in particular discipline.

## Specific Objectives -

Objectives proposed by each company as an essential part of the training for each engineering discipline which are approved by the Institution.

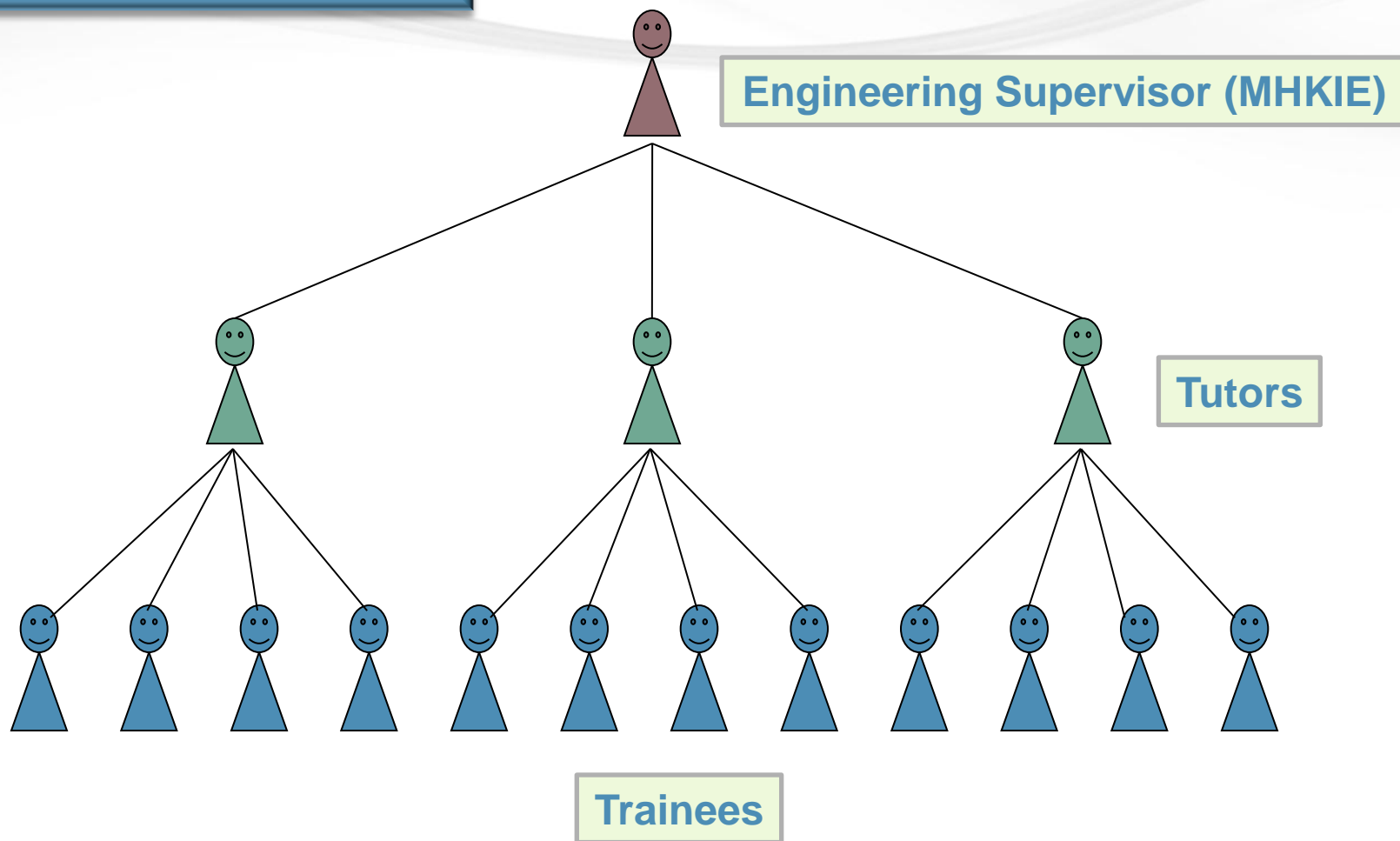
Each trainee should have a personal copy of the Record of Objectives which contains the above 3 types of objectives.

# Essential Elements in Scheme “A” Training

- Training Programme (TP)
- Training by Objectives (T-by-O)
- **Training Staff**
  - **Engineering Supervisor**
  - **Tutors**
- Trainees
- Assessment and Re-assessment
- Continuing Professional Development (CPD)

# Supervision of Trainees by ES and Tutors

Max Ratio of ES to Trainees 1:12  
Max Ratio of Tutor to Trainees 1:4



# Role and Responsibility of an Engineering Supervisor (ES)

- As a 'defacto' representative of the HKIE in the company to have the overall responsibilities for the successful implementation and operation of the Scheme "A" / Formal Training Scheme to Associate Membership in ensuring the quality of the trained graduate matches the HKIE's expectation.
- Responsible for 3 parts of training - Planning, Implementation and Assessment.
- To ensure trainees go to the right places and get the experiences scheduled in their Training Programme and Training Objectives.
- To meet trainees individually and formally on a regular basis to assess progress, to motivate and to encourage as necessary.

# Role and Responsibility of an Engineering Supervisor (ES) (con't)

- To **sign** and **make comments** directly on to entry of the Engineering Graduate Training Log Book.
- To **check** and **monitor** the trainees' progress in meeting objectives as indicated in the Record of Objectives.
- To **decide** whether the trainee has **learned** anything from attendance on the **CPD activities** and **endorse** the CPD activities in trainee's Record of CPD.
- To check, amend as necessary and return the **Quarterly Report** and **Final Training Report** to the HKIE.



# Essential Elements in Scheme “A” Training

- Training Programme (TP)
- Training by Objectives (T-by-O)
- Training Staff
- **Trainees**
- Assessment and Re-assessment
- Continuing Professional Development (CPD)

# Trainees

**To achieve the aim, trainees should :-**

- (a)** Learn to apply their degree theory to its 'real' life engineering uses.
- (b)** Learn through practical 'hands-on' experiences of a 'real' work kind.
- (c)** Be self-motivated and use every opportunity to enhance and reinforce their practical knowledge and skills.
- (d)** Have a good working attitude and relationship with all levels of fellow workers.
- (e)** Play a productive part in the company business!

**Act professionally and responsibly.**

# Essential Elements in Scheme “A” Training

- Training Programme (TP)
- Training by Objectives (T-by-O)
- Training Staff
- Trainees
- **Assessment and Re-assessment**
  - Facilities
  - Projects
- Continuing Professional Development (CPD)

# Assessment and Re-assessment



The HKIE Scheme “A” Assessments and Re-assessments are a form of “**Training Audit**” designed to evaluate the viability of the company’s proposal in meeting the HKIE graduate training aims.

# Assessment and Re-assessment

- **Facilities**

- Technical Library
- Computing Equipment
- Engineering Design Facilities

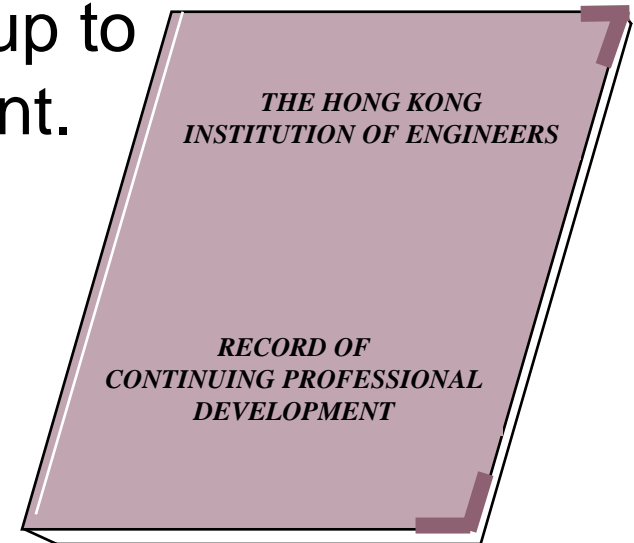
- **Projects**

# Essential Elements in Scheme “A” Training

- Training Programme (TP)
- Training by Objectives (T-by-O)
- Training Staff
- Trainees
- Facilities and Projects
- **Continuing Professional Development (CPD)**

# Scheme “A” CPD Requirement

A minimum average of **7.5 CPD days** (45 hours) per year calculated from the commencing date of Scheme “A”, up to the time of Professional Assessment.



# Specific CPD requirements for Scheme “A” Trainees

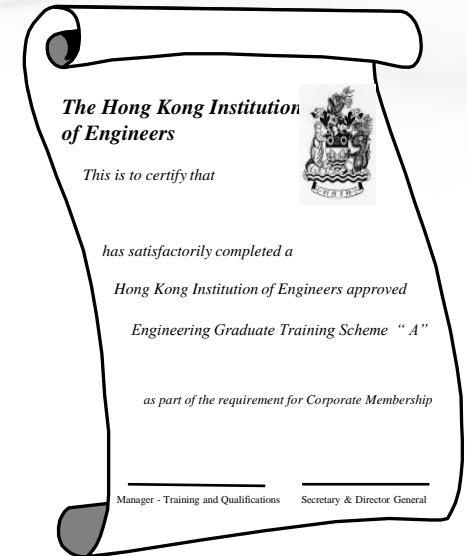
**A Minimum of 3 CPD days (18 hours) for each of the following items during the whole training period:**

- ⇒ **Occupational Safety and Health**
- ⇒ **Other technical matters not related to the trainee’s own discipline**  
(such as quality, environmental, IT, or other technical and related matters)
- ⇒ **General and Professional Matters**  
(such as Business Management, Communication, Financial Management, Leadership, Legal aspects, Marketing and other related matters)



# Completion of Training

- a) Engineering Supervisor affirms that the trainee has successfully completed the training (e.g. met the Objectives).
- b) Engineering Graduate Training Log Book, Record of CPD and Record of Objectives are considered satisfactory to the HKIE.



# The HKIE Training & Development Section

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**THANK YOU**