

**Department of Construction and Engineering
Technology**

Faculty of Science and Technology

Technological Higher Education Institute of Hong Kong



Work-Integrated Learning
SBS4309 Industrial Attachment

**Bachelor of Engineering (Hons) in
Building Services Engineering**

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1. Introduction

The module is a Work-Integrated Learning (WIL) module of Industrial Attachment. It aims to provide students with the opportunity to gain professional experience and to apply theories to real-life situations. The professional experience gained will prepare students to work effectively in professional positions, and to bridge the learning acquired in the programme with real-life practice they will encounter after graduation. The module aims to inspire students to analyse and give constructive critiques of the practices in industry, and facilitate the carrying out of the Final Year Project.

1.1 Module Learning Outcomes

On completion of this module, students are expected to be able to:

- 1) appraise the usage of theoretical engineering knowledge and techniques in industry practice;
- 2) command professional standards in the documentation and organization of technical reports and records
- 3) advise on possible improvements to field practices with new knowledge, technology or materials;
- 4) demonstrate and reflect on their growth in confidence and competence for carrying out professional duties; and
- 5) reflect on personal aptitude for the type of work carried out during the attachment.

1.2 Module Outline

The module will consist of a supervised three-month job attachment in engineering consulting firms, contractors, developers or relevant government departments, or an equivalent mock engineering project under the supervision of professional practitioners. The nature of the job attachments and projects will be related to general practice or any specialization in the relevant engineering field. Students will be assigned an academic supervisor and an industrial supervisor as both mentors and assessors of their performances in the job attachment. The scope of the Industrial Attachment should cover both engineering and management functions in the workplace with a theoretical, practical and professional context.

2. Learning and Assessment Strategies

On-the-job training in the Industrial Attachment would provide real-life workplace experience to enable students to relate theories to practices. Self-analysis will be an effective way for students to reflect on their own professional development. Vis-à-vis consultation with the industrial or academic supervisors would invoke an in-depth comprehension of the issues encountered in daily work and will be an effective way for students to consolidate both knowledge and experience.

The cumulative total duration of attachment over the entire period of the course should be at least 3 months (480 hours) and may take place during term-time or summer vacation.

Each student will be assigned an Academic Advisor from THEi and one Industrial Supervisor (Employer Mentor) from each workplace. The Industrial Supervisor will provide timely feedback during the work placement period and contribute to student's appraisal. Students are required to compile this logbook to record all the cases/event being involved during the WIL. Normally, all students must have a valid "Safety Green Card", as a form of possessing minimum occupational safety and health training, prior to undertaking any WIL placements.

2.1 Assessment Strategies

Assessment would be criteria-based and enable students to demonstrate the achievements of the module learning outcomes. The following abilities will be assessed through coursework only. Coursework includes training logbooks, reflective journals and an attachment report.

- 1) The ability to demonstrate the application of engineering knowledge to real-life complex problems;
- 2) The ability to examine or research alternative engineering solutions with the latest technology and development in the field;
- 3) The ability to work or manage projects in multi-disciplinary settings;
- 4) The ability to prepare and organize for professional development and life-long learning; and
- 5) The ability to duly address professional ethics, social responsibility and the need for sustainable development.

2.2 Assessment Components

The percentage contributions of the different assessment items to the overall module assessment are given below. The requirements of each component are described.

- Training Logbook: 15%
- Reflective Journal: 40%
- Attachment Report: 45%

This module will be graded Pass or Fail only. The company will be invited to evaluate the student performance too. A training certificate will be issued to indicate the quality of training results: Passed with distinction; Passed; and Failed.

(a) *Training Logbook*

- A brief record that summarizes your training activities on a weekly basis
- Training supervisors may refer to it from time to time for monitoring the training progress
- A useful reference for preparing the training report
- Examples of the typical details and format are shown in Appendices I and II.

(b) *Reflective Journal*

- Provide a summary of all WIL activities
- Linkage of WIL activities to subject area studies in the Programme
- Self-learning process and experience for personal development
 - Lessons learned and experience gained
 - Career identification/aspiration
 - Future career development needs

(c) *Attachment (Training) Report*

- A comprehensive record of the industrial attachment
- An important basis for assessing the student performance
- An important document for supporting the application for professional engineer status in the future
- The nominal length is not less than 3,000 words
- Focus on reporting what you have done and learnt. Avoid unnecessary details.
- May include photos, computer outputs, or company information in the report as appropriate (must obtain prior approval for disclosure of company information)

3. Training Logbook

The purpose of the training logbook is to provide a chronological written record of the work experience and professional development. It shall cover all activities that have been attended by the student in the whole duration of the industrial attachment up to the point of logbook submission. Students are required to keep a detailed on-going record of the weekly activities and training/working experience in the logbook. Entries should record in detail the work done since the previous entry and your responsibility for it. Your work should be verified by the Industrial Supervisor who is knowledgeable in your work area.

3.1 Writing Tips

The following writing tips are intended to provide some guidance with respect to the preparation of the work experience training logbook. The Academic Advisor and/or Industrial Supervisor will be able to provide additional guidance.

- The training logbook should be written in prose with full sentences in the first person.
- Provide detailed reports of engineering-related work that you have performed, not what your company/organization is involved in. In the content, you should show that you have gained relevant and varied engineering experience.
- The information you provide should also highlight your development toward an understanding of individual limitations with respect to the practice of engineering and your progression into work of greater complexity and increased responsibility.
- Document time spent on professional development activities such as course, seminars, training, etc., for both formal activities and those offered in-house by your company/organization.
- Document experience on a frequent and regular basis. **Do not leave it all until the end!**
- Ensure that proper signature verification is provided for all work experience entries. Have experience verified as you document it. **Do not wait until the end!**

3.2 Systematic Training Record

The training logbook is a systematic record of what the trainee considers important and has learned during the training related to events occurring, observations made and

problems identified (and solved). Students are required to complete one set of training logbook for every placement of Industrial Attachment that they undertake in a company/organization. If students have undertaken placements of Industrial Attachment in more than one company/organization or in cases where they have more than one supervisors in the same company/organization, they are required to complete separate sets of training log record.

The training logbook can be in the form of a diary or portfolio, depending on the preference of the student, with entries weekly. It will eventually serve as a verification of the hours of work experience needed for the completion of the attachment.

4. Reflective Journal

A reflective journal is a piece of writing which allows students to record thoughts and insights about their own learning experience. It encourages students to review and consolidate learning, to evaluate performance, to plan future learning based on past learning experience. In such a way, students become capable to take charge of their own learning, and eventually to develop into independent life-long learners.

The term “*Reflection*” means the process of thinking deeply with one’s awareness and conscious effort on an issue or event. The product of such a highly engaged cognitive process would be informing insights, strategies, plans and predictions on the issue one vigorously ponders upon. There are three essential metacognitive abilities for independent, reflective learners:

- **Awareness** of one’s learning experience
- **Evaluation** of the experience
- **Regulation** in attitude and behaviour for better performance and more fruitful experience

4.1 Writing Reflective Journal

Reflective journal is designed to help students think deeply about their learning, especially on issues such as: their progress in learning, the difficulties they encountered in the process of learning, the strategies they have taken to get around those difficulties, and their evaluation of one’s own performance. Writing a reflective learning journal helps students to bring together theory and practice, as well as yield better understanding of the material and information.

The reflective journal should have two sets of focuses: one explores the learning experience itself (i.e. the content, process and reasons), the other thinks about the learning experience in relation to one's academic, professional and personal development. Similar to the training logbook, students are required to prepare the reflective journal regularly, say weekly, each about 250 words of length. The quality of reflection should be the emphasis of your entries rather than worrying about the word count. The typical content of a reflective journal is shown in Table 1.

Table 1. Typical content of a reflective journal

Reflective Summary – Think back to the work you have done and comment on:

(An essay to address all the points below, say with 300 words at least)

- What you have done
- How it relates to what you have learned in your previous academic studies
- What you have learnt that you did not know before
- If you had to do it again, what could be improved
- Any accomplishments that you are particularly pleased about or proud of

4.2 Practical Advice and Tips

Reflective journal writing is very different from academic assignments that you have been writing. It is a piece of flexible, personal, informal piece of writing. If you are unsure about how to start, and how to write, don't just scabble something in the journal, as writing something truly "reflective" is the most important part of the process.

Six tips on what to write in a journal entry:

- Start off with whatever in your mind about your learning experience
- Don't just throw in events in chronological order
- Reflect on your process of learning. Record any observations, experience, thoughts and insights that are significant to you as a learner, or even as a person
- Describe the meaning of what you learnt in the course. Also, your reaction, feeling, opinions, views on both the learning process and the learnt material
- List the goods and bads, strengths and weaknesses you consider you demonstrate in the course of your learning
- Make advice for yourself and make plan for your learning in the near future

5. Training/Attachment Report

The training/attachment report is an overall documentation of experiences gained, activities, topics, projects, jobs etc. carried out by students at their workplace during the industrial attachment period. The report should give succinct details of all work-related activities that took place in the place of industrial attachment. Usually, the report should contain students' observations and assessments of:

- the practice and nature of the industry partner and the industry;
- the duty and technical knowledge and skills required by the job;
- the workplace environment and operation;
- the problems encountered and possible solutions for them;
- the skills and knowledge they have gained; and
- the ways that the work experience has served the present and future learning and professional goals.

A training/attachment report should be prepared for each period of approved employment. The report is expected to demonstrate development of practical and professional skills in engineering through technical experience and application of theoretical knowledge and research project/topic if there is. Development of skills in dealing with people, and communication skills form part of the training experience. Students should seek advice from their employers to ensure that no confidential material is included into the report.

4.1 Report Format

The format of the report can vary but should have at the least the following sections:

- Title Page with name(s) of the industry partner, Industry Supervisor and his/her title, the student's name and number, date completed, and the module code and title;
- Table of Contents, listing topics and sub-topics by chapter and page;
- Introduction, with an overview of the contents for the entire report;
- Main Body, written in narrative form, on the selected topics and subtopics, and aided with related diagrams, tables and pictures; and
- Appendix, with forms, charts, brochures, technical and descriptive literature, graphs, photos, and other information relating to the job and occupation, where appropriate.

All figures, tables and similar contents must be captioned and labeled. Every figure or table must be mentioned in the main text. The length of the report may be about 30 to 80 pages (A4 size) and these limits are for reporting text only and it's exclude the front page, preface, references and appendices. A properly prepared report can facilitate the presentation of the practical experience in an orderly, precise and interesting manner.

4.2 Report Elements

The typical elements for the training/attachment report include:

- History, background, main business of the company
- Organizational structure/chart
- Work done by you or you observed
- Your comments on the work done, types of experience gained, and problems encountered/solved
- Human relations with colleagues
- Views and recommendations (students are encouraged to write constructive and positive suggestions for improvement in the future)
- Conclusions (to summarize the whole contents of the report and matters pertain to industrial attachment)
- References, Appendices

References should be made in the text to books, technical papers, standards etc., used during the training period and should be listed. The conclusions should include comprehensive comments on the type and value of experience gained, and how this relates to your professional career.

Every appendix must have a title and be mentioned in the main text where appropriate. All page numbers must for appendixes must be continual from the main text.

DO NOT include irrelevant materials, e.g. brochures from the organizations, order forms, organization newsletters and similar materials.

Appendix I: Details of Industrial Attachment

(1) Training Company/Organization Information

Company Name:			
	(English)		
Company Address:			
	(English)		

Industry Supervisor/Employer Mentor

Name:			
	(English)		
Job Title:		Department/ Division:	
Tel:		Fax Number:	
Email Address:			

(2) Details of Industrial Attachment

Start Date (dd-mm-yyyy):		End Date (dd-mm-yyyy):	
Total Working Experience Hours:			
Job Title:		Department/ Division:	
Salary:	HKD per hour/week/month/job		
Working Location: (e.g. HK/ PRC/ Macau)		Source of Position	Please “√” the box: <input type="checkbox"/> by school <input type="checkbox"/> by student
Main Duties and Responsibilities:			

Privacy Policy Statement – The information collected will be used only for activities related to the workplace attachment scheme.

Appendix II: Format of Weekly Training Log Record

Week Number: _____ (From _____ to _____)
(dd-mm-yyyy) (dd-mm-yyyy)

Total Working Experience Hours: _____

Brief Description of Activities and Work Done

Endorsed and confirmed by:

Industrial Supervisor

Date