City University of Hong Kong
Course Syllabus

offered by College/School/Department of Electrical Engineering
with effect from Semester B in 2017/2018

Part I Course Overview

Course Title:	Engineering Training II for Electronic and Communication Engineering
Course Code:	EE4092
Course Duration:	Summer
Credit Units:	0
Level:	B4
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐ Study of Societies, Social and Business Organisations ☐ Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	EE4091 Engineering Training I for Electronic and Communication Engineering and EE2109 Electronic Circuits and [For Part A IAS: Pre-attachment Training or For Part B In-house Training: EE3002 or EE3003 or EE3004 Electronic Product Design or For Part C Summer Placement Scheme: EE3003 or EE3004 Electronic Product Design]
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

This course aims to enable students to gain practical experience under the Industrial Attachment Scheme (Part-A) or the in-house training scheme (Part-B) or the Summer Placement Scheme (Part C).

Part A (Industrial Attachment Scheme)
The aim is to enable students to gain practical experience and learn new technologies from an industrial environment while nurturing students with the spirit of professionalism.

Part B (In-House Training)
The aim is to provide relevant practical training for the Electronic and Communication discipline. Students will be assigned with a group project and will be trained with knowledge in product design, manufacturing and project management.

Part C (Summer Placement Scheme)
The aim of this part to provide students, in collaboration with industry, the realistic working environment under guidance of expertise. The real work experience will enhance their competitiveness in an increasingly challenging job market.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

Part A

No.	CILOs[#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Gain practical working experience from an industrial environment		√	√	
2.	Nurture the spirit of professionalism and develop professional ethics in a real life environment		√		
3.	Aware of the technologies used in a modern industrial setting			√	
4.	Communicate their ideas and present their work effectively		√	√	
** If weighting is assigned to CILOs, they should add up to 100%.*		100%			

Part B

No.	CILOs[#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Identify practical constraints, procure and manufacture an electronic product under the constraint of mass production		√	√	
2.	Solve real-world problems by applying proper engineering tools (e.g. LabVIEW) and analysis techniques			√	
3.	Demonstrate discipline and responsibility in a team		√		
4.	Communicate their ideas and present their work effectively		√	√	
** If weighting is assigned to CILOs, they should add up to 100%.*		100%			

Part C

No.	CILOs[#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Gain solid experience in a real work environment		√	√	
2.	Demonstrate problem-solving ability and interpersonal skills in team work		√	√	
3.	Recognise the correct attitude and professionalism		√	√	
4.	Aware the employability by meeting the needs of industry		√	√	
** If weighting is assigned to CILOs, they should add up to 100%.*		100%			

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

Part A

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4			
Laboratory	Students will be assigned to work in a company. A mentor in the company will provide an induction for students, assign jobs, and supervise them throughout the course of training in the company.	√	√	√	√			At least 40 hours/week (9-13 weeks)

Part B

Laboratory	The teaching and learning activities are primarily based on hands-on experiences on electronic product design. The students are required to submit detailed drawings of the component parts, assembly drawings, and circuit layouts. They also need to prepare an analysis of the manufacturing operations required, make cost estimates and prepare a flow chart for the complete manufacturing process which also includes the production floor plan. These activities will help the students to have better understanding of the practical constraints of electronic product manufacturing.	√						30 hours/week (5 weeks)
	The teaching and learning activities involve the development of an electronic product under the constraint of a real manufacturing plant. Issues involved include company organization structure, management style, sources of raw materials, inventory control, marketing channels, and other logistic supports.		√					
	The teaching and learning activities include report writing and manual preparation. The students need to prepare detailed manuals for manufacturing the product in quantity. The manuals should include the design, production and quality assurance and should be sufficiently detailed to allow its manufacture without the need to consult the original design engineer. Students will be required to demonstrate their products and to give a presentation of their work.			√	√			

Part C

Laboratory	Students will work on an industrial project and/or assist in the day-to-day operation of the company as assigned by their company supervisor. Students will also meet with their CityU supervisor at regular intervals during their placement period to discuss their training and seek advice if necessary.	√	√	√	√			At least 40 hours/week (9-13 weeks)

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Part A:

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3	4				
Continuous Assessment: 100%								
Logbook, Demonstration, Presentation, Three company visits and interviews by Co-supervisors	√	√	√	√			100%	
Examination: N/A								
** The weightings should add up to 100%.*							100%	

Remark:

The assessment is purely on a pass/fail basis. To pass the course, students must complete the training with satisfactory performance recommended by the company mentor as well as CityU co-supervisor.

Part B:

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3	4				
Continuous Assessment: 100%								
Logbook, Project deliverables e.g. reports, programmes, demonstration, Presentations, Attendance and work attitude visits and interviews by CityU Co-supervisors	√	√	√	√			100%	
Examination: N/A								
** The weightings should add up to 100%.*							100%	

Remark:

The assessment is purely on a pass/fail basis. To pass the course, students are required to have a laboratory attendance of 100% recorded.

Part C:

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3	4				
Continuous Assessment: 100%								
Logbook, Project Presentation, Company visits and interviews by CityU supervisors	√	√	√	√			100%	
Examination: N/A								
** The weightings should add up to 100%.*							100%	

Remark:
The assessment is purely on a pass/fail basis. To pass the course, individual student must complete the training with satisfactory performance recommended by the company supervisor as well as CityU supervisor.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Pass (P)	Failure (F)
Continuous assessment on the progress of assigned tasks or group project	Achievements in CILOs	Reach the required level	Not even reaching marginal level

6. Constructive Alignment with Major Outcomes

MILO	How the course contribute to the specific MILO(s)
1, 2, 3, 5, 10	This training course provides plenty opportunities for students to practice as an engineer to carry out projects on a job position offered by the IAS or an emulated in-house environment. Students will be able to gain hands-on experiences that complement the theoretical studies covered in the regular taught courses.
4. 7	Real-world projects are commonly developed by teams. Students in this course can enhance communication skills through coordinating tasks, group discussion and presentations. The working environment also promotes team spirit and one's responsibility.
6, 8, 9	By exposing students to a competitive industrial environment, they are alerted to the importance of life-long learning. They are expected to gain knowledge in contemporary issues and be aware of the impact of engineering solutions in a broad, global and societal context. They will also realize their professional and ethical responsibilities under the guidance of mentors and supervisors.

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

Part A: Industrial Attachment Scheme

Structure and content

Students are required to take nine to thirteen weeks of training in an electronics company. The training of each student is subject to the availability of engineering training programme of individual company. Student may be exposed to work in product design, production, and quality assurance.

Supervision and Assignment

An engineer of the Company will be assigned to be the mentor who is responsible for giving guidance and advice to the student and assessing the student's performance during the training. An academic staff from the Department of Electronic Engineering, City University of Hong Kong, will be appointed to co-supervise and monitor the progress of the student. Students are required to report their work in a log-book every week. The assessment is based on the log-book and the performance of their work. Students will be required to give a presentation on their work at the end of the attachment.

Part B: In-house Training

The prototype design for this project is carried out in the Electronic Product Design course. The manufacturing part of the project for this course is a continuation of the prototype design work.

The project work composes of definite phases, brief descriptions of which are shown below:

a. Part I - Detailing, Drawing and Planning
   Detailed drawings of the component parts, assembly drawings, circuit layout diagrams and related documents have to be prepared. The project team will also prepare an analysis of the manufacturing operations required, make cost estimates and prepare a flow chart for the complete manufacturing process which also includes the production floor plan.

b. Part II - Manufacturing, Assembly Testing and Evaluation
   Teams will procure then manufacture the parts and sub-assemblies, followed by the assembly and the testing of the prototype using modern testing tools like LabVIEW. Test and measurement should be based wholly on these tools such as electrical tests, prototype acceptance test setup and procedures, in-process testing procedures and final assembly testing procedures. Teams will then evaluate the prototype with a view to quantity production, and make any necessary recommendations regarding the improvement of design, manufacturing procedure, assembly, and testing of the product.

c. Part III - Documentation
   Documentation should include a brief but comprehensive written report as well as manuals detailed enough to manufacture the product in quantity. The manuals should include the design, production and quality assurance and should be sufficiently detailed to allow its manufacture without the need to consult the original design engineer.

d. Part IV - Presentation
   Teams will present their work using modern presentation tools and techniques. Emphasis will be placed on students' use of the English language and presentation techniques.

Project teams will be small in size with each team working on one project presented in the form of a general circuit diagram and description of the prototype requirements. The staff concerned will discuss with the teams the general design and working principles of the project followed by which the teams are required to work in accordance with Part I, II and III above.

Each project will be sub divided into a number of stages or phases. In each stage, a leader will be appointed within the team. Each member in the team will take turn to act as a leader in order to ensure that supervisory and leadership experiences are gained. The duty of a leader is to monitor the progress of work and to take note of milestones that are met and if not to take remedial action. In case of problems, the leader should alert the team and consult the staff concerned in order to overcome these difficulties.

The projects assigned require sustained effort to complete within the five scheduled weeks. It is expected that team members are not confined by an "employee" concept of "standard" working days and working hours. Meeting of the target dates is considered an important part of this training.

This manufacturing project comply with all respects with respect to the work, the environment, the work attendance, and the work procedures.

Part C: Summer Placement Scheme

Students are required to take the summer semester of training after their year-3 study in a company. Students may integrate the knowledge they acquired in classroom and apply it in real work setting. They also develop an understanding of the operation of industry, based on which students can further plan their career.

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	N/A

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	N/A