

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 I for Electronic and Communication Engineering

Course Code: EE4091

Course Duration: One Summer Semester

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: EE2301 Basic Electronic Circuits
(Course Code and Title)

Precursors: Nil
(Course Code and Title)

Equivalent Courses: Nil
(Course Code and Title)

Exclusive Courses: Nil
(Course Code and Title)

Part II Course Details

1. Abstract

This course aims to provide students with relevant practical training for the Electronic and Communication Engineering discipline. It emphasizes hands-on experiences that complement the theoretical studies covered in the regular taught courses.

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.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Use computer-aided tools to design a PCB and fabricate the PCB		✓	✓	
2.	Assemble, trouble-shoot and test an electronic circuit and fabricate the casing for the product		✓	✓	
3.	Appreciate the surface mount technology		✓	✓	
4.	Recognize the technologies used in electronic industry through the practical experience gained in the course		✓	✓	
		100%			

* If weighting is assigned to CILOs, they should add up to 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.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4			
Laboratory	The teaching and learning activities are primarily based on training the students to use CAD software to do their schematic diagram and PCB design. Upon completion of the schematic and PCB design, each student is required to submit the schematic diagram, PCB routing diagrams and PCB component layout for verification before fabricating the PCB.	✓			✓			2 weeks (7 hrs x 10 days, 70 contact hours)
	Each student needs to build and trouble-shoot an electronic assembly, test and measure the circuit specifications, and write down the result in a test report. The students are also required to fabricate the casing assembly for the product using the basic training on bench work in the workshop.		✓		✓			
	To appreciate the general ideas and safety precautions about screen printing, chip mounting pick and place, and soldering by reflow oven.			✓	✓			

4. Assessment Tasks/Activities (ATs)

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

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3	4				
Continuous Assessment: <u>100%</u>								
Lab work, diagrams drawing, electronic assembly, measuring of instruments, test report, bench work and demonstration with Q & A	✓	✓	✓	✓				
Examination: <u>0%</u> (duration: hrs , if applicable)								
* 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.

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)
Coursework	Achievements in CILOs	Reach the required level	Not even reaching marginal level

6. Constructive Alignment with Major Outcomes

Please state how the course contribute to the specific MILO(s)

MILO	How the course contribute to the specific MILO(s)
1, 2, 3, 5, 10	This training course imparts students to some of the necessary skills and tools required for electronic engineering design work and measurement, in particular, use of computer aided design from a circuit diagram to printed circuit board assembly is practiced.
6, 9	By exposing students to a simulated in-house training environment as in the industry, they are expected to be aware of the importance of life-long learning. They will also realize their professional and ethical responsibilities under the guidance of the training supervisors.

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

1. Keyword Syllabus

CAD Training and PCB Fabrication

Work will be based around a schematic design and a PCB design using CAD software. The students are required to draw the schematic diagram using electrical and electronic symbols; create the PCB top and bottom layouts, and component overlay; and then fabricate their own PCB.

Electronic Circuit Assembly

Students are required to implement their PCB design by building a simple electronic circuit that the student can take home and find useful such as an audio amplifier. Each student also needs to trouble-shoot, test and measure, and demonstrate his or her own electronic product for functional assessment.

Workshop Training on Casing Fabrication

Work will be based around a simple box type structure, safety in workshop, safety in use of tools and electrical machines, measurement using vernier calliper, drilling, tapping, fixings and bench fitting.

Appreciation of SMT

Demonstration will be based on the manufacture of a PCB using surface mount technology such as chip components, screen printing, chip mounting, pick and place, reflow soldering.

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.)

	Nil

2.2 Additional Readings

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

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