香港城市大學
City University
of Hong Kong

Curriculum Information Record for a Major/Degree

**Department of Electrical Engineering
Effective from Semester A, 2020/21
For Students Admitted/Changed to the Major with Catalogue Term
Semester A 2018/2019**

The information provided on this form is the official record of the major/degree. It will be used for City University's database, various City University publications (including websites) and documentation for students and others as required.

In specifying the curriculum for a major/degree, "catalogue term" is used to determine the set of curriculum requirements that a student is following. By mapping the student record and the version of curriculum rules applicable, the graduation requirements of individual students will be evaluated accordingly. The catalogue terms of curriculum requirements that students will follow are summarized below (BUS/04/A5R):

Requirements	Catalogue Term

a) Common Requirements
  • Gateway Education
  • University Language
  • College/School requirement
	The same as student's admission term

b) Major • For normative 4-year degree students who will join the majors allocation exercise	Effective term of the declared major
• For advanced standing students and 4-year degree students who already have a major at the time of admission	The same as student's admission term
• For students who have changed major	Effective term of the changed major
c) Stream	Follow the effective term of the associated major

Prepared / Last Updated by

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AC/hl 20-Apr-15, 30-Jun-15, AC/sh 26-Jan-16, AC/SW/sh 15-Jul-16, Updating curriculum map, SW/sh 8-Sep-16, SW/sh 19-Jan-19, SW/sh 17-May-17, Sh 1-Sep-17, SW/sh 29-Jan-18, SW/sh 25-May-18, SW/sh 19-Nov-18, SW/sh 15-May-19, sh Dept Name Change 31-May-19, SW/sh 17-Jun-19, LHC/sh 15-Jun-20

Curriculum Information Record for a Major/Degree
Dec 2014

City University of Hong Kong

Curriculum Information Record for a Major/Degree

Department of Electrical Engineering
Effective from Semester A, 2020/21
For Students Admitted/Changed to the Major with Catalogue Term
Semester A 2018/2019

Part I   Major/Degree Overview

Major	(in English)	:	Electronic and Communication Engineering
	(in Chinese)	:	電子及通訊工程學

Degree	(in English)	:	Bachelor of Engineering
	(in Chinese)	:	工學士

Award Title[#]	(in English)	:	Bachelor of Engineering in Electronic and Communication Engineering
	(in Chinese)	:	工學士(電子及通訊工程學)

 # Please make reference to the "Guidelines on Award Titles" approved by the Senate when proposing new award titles or changes to existing award titles (Senate/86/A5R).

1.   Normal and Maximum Period of Study

	Normative 4-year Degree	**Advanced Standing I** (Note 1)	**Advanced Standing II (Senior-year Entry)** (Note 2)
Normal period of study	4 years	3 years	2.5 years
Maximum period of study	8 years	6 years	5 years

Note 1: For students with recognised Advanced Level Examination or equivalent qualifications.
Note 2: For Associate Degree/Higher Diploma graduates admitted to the senior year.

2. Minimum Number of Credit Units Required for the Award and Maximum Number of Credit Units Permitted

Degree Requirements	Normative 4-year Degree	Advanced Standing I	Advanced Standing II (Senior-year Entry)
Gateway Education requirement *	30 credit units	21 credit units	12 credit units
College/School requirement *	6 credit units	Not required	Not required
Major requirement	84 credit units (Core: 69 Elective:15)	75 credit units (Core: 60 Elective: 15)	63-72 credit units (Core: 48-57 Elective: 15)
Free electives / Minor (if applicable)	Optional	Optional	N.A.
Minimum number of credit units required for the award	**120 credit units**	**96 credit units**	**75 credit units**
Maximum number of credit units permitted	**144 credit units**	**114 credit units**	**84 credit units**

* For details, please refer to the Curriculum Information Record for Common Requirements.

3. Aims of Major

The aims of this major are to provide students with an education in electronics and communications, and to prepare graduates to have the necessary knowledge, skills and understanding to pursue a career as professional engineers. The contents covered aim to have breadth to allow graduates to work across boundaries, as well as depth to equip and prepare them to meet the demands of employers as well as the demands for pursuing postgraduate studies. Through this experience, our graduates will also have the ability and vision that will enable them to become independent life-long learners in this rapidly changing high-tech industry.

4. Intended Learning Outcomes of Major (MILOs)
(Please state what the student is expected to be able to do on completion of the major according to a given standard of performance.)

Upon successful completion of this major, students should be able to:

No.	MILOs	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
		A1	*A2*	*A3*
1.	apply knowledge of mathematics, science and engineering.		√	
2.	design and conduct experiments as well as to analyze and interpret data.			√
3.	design a system, component, or process that conforms to a given specification within realistic constraints.			√

4.	function on multi-disciplinary teams.	√		
5.	identify, evaluate, formulate and solve engineering problems.		√	√
6.	be aware of professional and ethical responsibilities.	√		
7.	communicate effectively.		√	√
8.	have knowledge in contemporary issues and an awareness of the impact of engineering solutions in a broad, global and societal context.	√		
9.	recognise the need for life-long learning.	√		
10.	use necessary engineering tools.		√	

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 real-life problems.

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

Part II   Major Requirement

(The catalogue term of the major requirement that students will follow will be the effective term of the declared/allocated major.

For normative 4-year degree students who will join the majors allocation exercise, the catalogue term of major requirement will be one year after admission.

For advanced standing students and 4-year degree students who already have a major at the time of admission, the catalogue term of major requirement will be the same as their admission term.)

1. **Core Courses**
   Normative 4-year Degree: 69 credit units
   Advanced Standing I: 60 credit units
   Advanced Standing II: 48-57 credit units

Course Code	Course Title	Level	Credit Units	Remarks
EE1001	Foundations of Digital Techniques	B1	3	Advanced Standing I/II: Not required
EE1002	Principles of Electronic Engineering	B1	3	Advanced Standing I/II: Not required
GE1354	Introduction to Electronic Design	B1	3	Advanced Standing I/II: Not required
CS2311	Computer Programming	B2	3	Advanced Standing II: Not required
EE2000	Logic Circuit Design	B2	3	See remark #
EE2004	Microcomputer Systems	B2	3	See remark #
EE2104	Introduction to Electromagnetics	B2	3	
EE2108	Engineering Analysis	B2	3	
EE2109	Electronic Circuits	B2	3	

EE2301	Basic Electronic Circuits	B2	3	See remark #
MA2001	Multi-variable Calculus & Linear Algebra	B2	3	
EE3070	Design Project	B3	3	Two semesters
EE3008	Principles of Communications	B3	3	
EE3012	Engineers in Society	B3	3	Students having completed EE4081 Professional Internship Program (6CU) are not required to take this course and one other elective. For those who have completed 12-month internship in EE4081 are not required to take EE4092 Engineering Training II for Electronic and Communication Engineering.
EE3101	Communication Engineering	B3	3	
EE3109	Applied Electromagnetics	B3	3	
EE3110	Analogue Electronic Circuits	B3	3	
EE3114	Systems & Control	B3	3	
EE3115	Applied Optoelectronic Devices	B3	3	
EE3210	Signals and Systems	B3	3	
MA3001	Differential Equations	B3	3	
EE4091	Engineering Training I for Electronic and Communication Engineering	B4	0	
EE4092	Engineering Training II for Electronic and Communication Engineering	B4	0	
EE4080	Project	B4	6	

Upon admission, Advanced Standing II students will be reviewed on their qualifications and backgrounds to see if these courses are required for their major requirements.

2. **Electives (15 credit units)**

   Choose FIVE electives from Group A and Group B. TWO should be taken from Group A while THREE should be from Group B.

   Group A (6 credit units)

Course Code	Course Title	Level	Credit Units	Remarks
EE3009	Data Communications and Networking	B3	3	
EE4035	Optical Fibre Communications	B4	3	
EE4036	Wireless Communications	B4	3	
EE4316	Mobile Data Networks	B4	3	

   Group B (9 credit units)

Course Code	Course Title	Level	Credit Units	Remarks
EE2331	Data Structures and Algorithms	B2	3	
EE3206	Java Programming and Applications	B3	3	

EE4015	Digital Signal Processing	B4	3	
EE4016	Engineering Applications of Artificial Intelligence	B4	3	
EE4017	Internet Finance	B4	3	
EE4045	Computer Controlled Systems	B4	3	
EE4101	Sustainable Energy Systems	B4	3	
EE4105	Principles of Lasers	B4	3	
EE4107	Microwave Circuits for 5G Wireless Product Design	B4	3	
EE4108	Fundamentals of Antenna Design	B4	3	
EE4115	Audio-Visual Engineering	B4	3	
EE4142	Introduction to Integrated Photonics	B4	3	
EE4146	Data Engineering and Learning Systems	B4	3	
EE4209	Digital Audio Technology	B4	3	
EE4215	Cybersecurity Technology	B4	3	
EE4221	Cloud Computing Systems	B4	3	

3. **Optional One-year Internship**

Course Code	Course Title	Level	Credit Units	Remarks
EE4081	Professional Internship Program	B4	6	Students having completed EE4081 Professional Internship Program (6CU) will take one less elective (3CU) and are not required to take EE3012 Engineers in Society (3CU). For those who have completed 12-month internship in EE4081 are not required to take EE4092 Engineering Training II for Electronic and Communication Engineering.

Part III Admission Requirements for Entry to the Major, if any

(Admission requirements here refers to specific requirements for students already admitted to the College/School/Department with an undeclared major. Academic units can state the prerequisites required for admission to the major.)

Nil

Part IV Accreditation by Professional / Statutory Bodies

The major is accredited by the Hong Kong Institution of Engineers (HKIE).

Part V Additional Information

Nil

Part VI   Curriculum Map

(The curriculum map shows the mapping between courses and the MILOs. It should cover all courses designed specifically for the major.)

Course Code	Title	Credit	M1 (a)	M2 (b, l)	M3 (c)	M4 (d)	M5 (e)	M6 (f)	M7 (g, l)	M8 (h, i)	M9 (j)	M10 (k, l)	A1	A2	A3
Core Courses															
EE1001	Foundations of Digital Techniques	3	T/P	T/P	T/P		T/P		T/P			P	✓	✓	
EE1002	Principles of Electronic Engineering	3	T/P				T/P		T/P	P	P		✓	✓	
GE1354	Introduction to Electronic Design	3	T/P	T/P	T/P	P	T/P		T/P			P	✓	✓	✓
CS2311	Computer Programming	3	T/P		T/P		T/P					T/P	✓	✓	
EE2000	Logic Circuit Design	3	T/P	P	T/P/M		P		P/M			P	✓	✓	
EE2004	Microcomputer Systems	3	T/P	T/P/M	T/P/M	P	T/P		P/M			T/P/M	✓	✓	✓
EE2108	Engineering Analysis	3	T/P/M				T					T/P/M	✓	✓	
EE2301	Basic Electronic Circuits	3	T/P	T/P			T		T			T	✓	✓	
EE3210	Signals and Systems	3	T/P/M	T/P	T/P		T/P	T		T	T	P	✓	✓	
MA2001	Multi-variable Calculus & Linear Algebra	3	T/P										✓	✓	✓
MA3001	Differential Equations	3	T/P										✓	✓	✓
EE4091	Engineering Training I for Electronic and Communication Engineering	0	T/P	P	T/P		P	T/P			P	T/P	✓	✓	
EE2104	Introduction to Electromagnetics	3	T/P	T/P									✓	✓	
EE2109	Electronic Circuits	3	T/P	T/P/M			P		T			T	✓	✓	
EE3070	Design Project	3	T/P	P/M	T/P/M	P/M	P/M	T/P	P	T/P	P/M	T/P/M	✓	✓	✓
EE3008	Principles of Communications	3	T/P	T/P			T/P			T		T	✓	✓	
EE3101	Communication Engineering	3	T/P/M	T/P		P	T/P		P/M			P	✓	✓	
EE3109	Applied Electromagnetics	3	T	T		T	T		T			T	✓	✓	
EE3110	Analogue Electronic Circuits	3	T/P	T/P/M		P/M	T/P/M		P			P	✓	✓	
EE3114	Systems & Control	3	T/P	T		T	T/P		T/P/M			T	✓	✓	
EE4092	Engineering Training II for Electronic and Communication Engineering	0	P	P	P	T/P/M	P	P/M	P	P	P/M	P/M	✓	✓	
EE3012	Engineers in Society	3						T/P/M		T/P/M			✓	✓	
EE3115	Applied Optoelectronic Devices	3	T		T		T						✓	✓	
EE4080	Project	6	P/M	P	P		P/M	P/M	P/M	P/M	P/M	P	✓	✓	✓
Electives (choose 15 credits) *Choose FIVE electives from Group A and Group B. TWO should be taken from Group A while THREE should be from Group B.*															
Group A (6 credit units)															
EE3009	Data Communication Networking	3	T/P				T/P					T/P	✓	✓	

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Course Code	Title	Credit	M1 (a)	M2 (b, l)	M3 (c)	M4 (d)	M5 (e)	M6 (f)	M7 (g, l)	M8 (h, i)	M9 (j)	M10 (k, l)	A1	A2	A3
														DEC	
EE4035	Optical Fibre Communications	3	T/P	T/P	T/P	T	T/P	T	T/P			P	✓	✓	
EE4036	Wireless Communications	3	T/P		T/P		T/P						✓	✓	
EE4316	Mobile Data Networks	3	T/P	T/P	T/P	T/P	T/P						✓	✓	
Group B (9 credit units)															
EE2331	Data Structures and Algorithms	3	T/P		T/P		T/P/M					P	✓	✓	
EE3206	Java Programming and Applications	3	T/P		T/P		T/P					P	✓	✓	✓
EE4015	Digital Signal Processing	3	T/P		T/P		T/P						✓	✓	
EE4016	Engineering Applications of Artificial Intelligence	3	T/P		T/P		T/P						✓	✓	
EE4017	Internet Finance	3	T/P		T/P		T/P					T/P	✓	✓	
EE4045	Computer Controlled Systems	3	T/P		T/P		T/P					P	✓	✓	
EE4101	Sustainable Energy Systems	3	T/P		T/P	P	T/P		P	P		P	✓	✓	
EE4105	Principles of Lasers	3	T/P		T/P		T/P						✓	✓	
EE4107	Microwave Circuits for 5G Wireless Product Design	3	T/P	T/P	T/P		T/P						✓	✓	
EE4108	Fundamentals of Antenna Design	3	T/P		T/P		T/P						✓	✓	
EE4115	Audio-Visual Engineering	3	T/P		T/P		T/P						✓	✓	
EE4142	Introduction to Integrated Photonics	3	T/P	T/P	T/P		T/P						✓	✓	
EE4146	Data Engineering and Learning Systems	3	T/P		T/P		T/P						✓	✓	
EE4209	Digital Audio Technology	3	T/P	T/P	T/P		T/P						✓	✓	
EE4215	Cybersecurity Technology	3	T/P	T/P	T/P	T/P	T/P			P		P	✓	✓	
EE4221	Cloud Computing Systems	3	T/P		T/P/M		T/P					T/P	✓	✓	
Optional One-year Internship															
EE4081	Professional Internship Program	6				P	P	T/P/M	P	T/P/M			✓	✓	✓

Remark: Students having completed EE4081 Professional Internship Program (6CU) will take one less elective (3CU) and are not required to take EE3012 Engineers in Society (3CU).

For those who have completed 12-month internship in EE4081 are not required to take EE4092 Engineering Training II for Electronic and Communication Engineering.

T-taught, P-practiced, M-measured

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 real-life problems.

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