Curriculum Information Record for a Major/Degree

Department of Electrical Engineering
Effective from Summer Term, 2021/22
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

Name:	Prof H C So	Academic Unit:	Electrical Engineering
Phone/email:	3442 7780/hcso@ee.cityu.edu.hk	Date:	6 Jan 2022

AS/sh 25-May-18, AS/sh 19-Nov-18, AS/sh 15-May-19, sh Dept Name Change 31-May-19, AS/sh 17-Jun-19, AS/sh 15-Jun-20, HCS/sh 14-Dec-20, HCS/sh 4-Mar-21, HCS/sh 6-Jan-22
Curriculum Information Record for a Major/Degree
Dec 2014

1

City University of Hong Kong

Curriculum Information Record for a Major/Degree

Department of Electrical Engineering
Effective from Summer Term, 2021/22
For Students Admitted/Changed to the Major with Catalogue Term
Semester A 2018/2019

Part I   Major/Degree Overview

Major	(in English)	:	Information Engineering
	(in Chinese)	:	資訊工程學
Degree	(in English)	:	Bachelor of Engineering
	(in Chinese)	:	工學士
Award Title[#]	(in English)	:	Bachelor of Engineering in Information Engineering
	(in Chinese)	:	工學士(資訊工程學)

 # 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)	60-72 credit units (Core: 45-57 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**	**72 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 information engineering, and to prepare them 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 information age.

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: 45-57 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 #
EE2301	Basic Electronic Circuits	B2	3	See remark #
EE2302	Foundations of Information and Data Engineering	B2	3	
EE2331	Data Structures and Algorithms	B2	3	See remark #

EE3206	Java Programming and Applications	B3	3	
MA2001	Multi-variable Calculus & Linear Algebra	B2	3	
CS3103	Operating Systems	B3	3	
CS3402	Database Systems	B3	3	
EE3008	Principles of Communications	B3	3	
EE3009	Data Communications and Networking	B3	3	
EE3012	Engineers in Society	B3	3	Students successfully completed EE4082/EE4083/EE4084 are not required to take this course.
EE3070	Design Project	B3	3	Students successfully completed EE4083 are not required to take this course.
EE3210	Signals and Systems	B3	3	
EE3301	Optimization Methods for Engineering	B3	3	
EE3315	Internet Technology	B3	3	
EE3331	Probability Models in Information Engineering	B3	3	
EE4093	Engineering Training I for Information Engineering	B4	0	Students who have not completed both courses in the training pair EE4093 and EE4095 should take EE4090 Engineering Training as a replacement.
EE4095	Engineering Training II for Information Engineering	B4	0	Students successfully completed EE4084 are not required to take these courses.
EE4080	Project	B4	6	Students successfully completed EE4084 are not required to take this course.

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)**

Students are required to take at least FIVE electives of which no more than ONE Level-3 elective should be taken.

Communications and Networking

Course Code	Course Title	Level	Credit Units	Remarks
EE4014	Business Data Communication Networks	B4	3	
EE4017	Internet Finance	B4	3	
EE4036	Wireless Communications	B4	3	
EE4212	Cryptography and Information Theory	B4	3	

EE4316	Mobile Data Networks	B4	3	

Computer Systems and Information Processing

Course Code	Course Title	Level	Credit Units	Remarks
CS4482	Advanced Database Systems	B4	3	
EE3209	Data Management Techniques	B3	3	
EE4015	Digital Signal Processing	B4	3	
EE4016	Engineering Applications of Artificial Intelligence	B4	3	
EE4146	Data Engineering and Learning Systems	B4	3	
EE4215	Cybersecurity Technology	B4	3	
EE4211	Computer Vision	B4	3	
EE4221	Cloud Computing Systems	B4	3	
EE4222	Digital Forensics	B4	3	

Software Design and Development

Course Code	Course Title	Level	Credit Units	Remarks
CS3391	Advanced Programming	B3	3	
CS4367	Computer Games Design	B4	3	
EE4208	Computer Graphics for Engineers	B4	3	
EE4213	Human-Computer Interaction	B4	3	
EE4216	Modern Web Applications	B4	3	
EE4304	iOS Mobile App Development and Networking	B4	3	

3. **Optional Internship Courses**

Course Code	Course Title	Level	Credit Units	Remarks
EE4082	Professional Internship Program	B4	3	This internship course of 3CU can be used to waive the Major requirement of **EE3012 Engineers in Society**.
EE4083	Professional Internship Program	B4	6	This internship course of 6CU can be used to waive the Major requirements of **EE3012 Engineers in Society and EE3070 Design Project or its equivalent.**

EE4084	Professional Internship Program	B4	9	This internship course of 9CU can be used to waive the Major requirements of **EE3012 Engineers in Society, EE4080 Project or its equivalent, and EE4090 Engineering Training or its equivalent.**

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 Course															
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/M	T/P		P/M			T/P/M	✓	✓	✓
EE2302	Foundations of Information and Data Engineering	3	T/P/M	T/P			T					T/P	✓	✓	
EE2301	Basic Electronic Circuits	3	T/P	T/P/M			T		T			T	✓	✓	
EE3206	Java Programming and Applications	3	T/P		T/P		T/P					P	✓	✓	✓
MA2001	Multi-variable Calculus and Linear Algebra	3	T/P										✓	✓	✓
EE3331	Probability Models in Information Engineering	3	T/P		T/P		T/P						✓	✓	
EE4093	Engineering Training I for Information Engineering	0	T/P	P/M	T/P		P	T/P			P/M	T/P	✓	✓	
CS3103	Operating Systems	3	T/P	T	T/P		T					T/P	✓	✓	
CS3402	Database Systems	3	T/P		T/P		T/P					P	✓	✓	
EE2331	Data Structures and Algorithms	3	T/P		T/P		T/P/M					P	✓	✓	✓
EE3008	Principles of Communications	3	T/P	T/P			T/P			T		T	✓	✓	
EE3009	Data Communications and Networking	3	T/P				T/P					T/P/M	✓	✓	
EE3210	Signals and Systems	3	T/P/M	T/P	T/P		T/P	T		T	T	P	✓	✓	
EE3301	Optimization Methods for Engineering	3	T/P/M				T/P					T/P/M	✓	✓	
EE3315	Internet Technology	3	T/P	T/P/M		P/M	T/P/M		P			P	✓	✓	
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	✓	✓	✓
EE4095	Engineering Training II for Information Engineering	0	P	T/P	T/P	T/P/M	P	P/M	P	P	P/M	T/P/M	✓	✓	
EE3012	Engineers in Society	3					T/P/M		T/P/M				✓	✓	
EE4080	Project	6	P/M	P	P		P/M	P/M	P/M	P/M	P/M	P	✓	✓	✓
Electives (choose 15 credits) *Students are required to take at least FIVE electives of which no more than ONE Level-3 elective should be taken*															
Communications and Networking															
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

Code	Course Title	Cr.												
EE4014	Business Data Communication Networks	3	T/P		T/P		T/P				P	✓	✓	
EE4017	Internet Finance	3	T/P		T/P		T/P				T/P	✓	✓	
EE4036	Wireless Communications	3	T/P		T/P		T/P					✓	✓	
EE4212	Cryptography and Information Theory	3	T/P				T/P					✓	✓	
EE4316	Mobile Data Networks	3	T/P	T/P	T/P	T/P	T/P					✓	✓	
Computer Systems and Information Processing														
CS4482	Advanced Database Systems	3	T/P		T/P		T/P				P	✓	✓	
EE3209	Data Management Techniques	3	T/P		T/P		T/P				T/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					✓	✓	
EE4146	Data Engineering and Learning Systems	3	T/P		T/P		T/P					✓	✓	
EE4215	Cybersecurity Technology	3	T/P	T/P	T/P	T/P	T/P		P		P	✓	✓	✓
EE4211	Computer Vision	3	T/P	T/P			T/P				T/P	✓	✓	
EE4221	Cloud Computing Systems	3	T/P		T/P/M		T/P				T/P	✓	✓	
EE4222	Digital Forensics	3	T/P	T/P	T/P		T/P				T/P	✓	✓	
Software Design and Development														
CS3391	Advanced Programming	3	T/P		T/P		T/P				P	✓	✓	
CS4367	Computer Games Design	3	T/P		T/P		T/P				T/P	✓	✓	
EE4208	Computer Graphics for Engineers	3	T/P		T/P		T/P				P	✓	✓	
EE4213	Human-Computer Interaction	3	T/P		T/P		T/P				P	✓	✓	✓
EE4216	Modern Web Applications	3	T/P		T/P		T/P			P	P	✓	✓	
EE4304	iOS Mobile App Development and Networking	3	T/P		T/P	T/P	T/P				P	✓	✓	
Optional Internship Courses														
EE4082	Professional Internship Program	3				P	P	T/P/M	P	T/P/M		✓	✓	✓
EE4083	Professional Internship Program	6				P	P	T/P/M	P	T/P/M		✓	✓	✓
EE4084	Professional Internship Program	9				P	P	T/P/M	P	T/P/M		✓	✓	✓

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.