Curriculum for BEng in Computer Engineering

Two options are offered in this program namely: the Embedded Systems Option and the Honors Research Option. Please refer to page 84 and 88, respectively, for program requirements of the two options.

Major Program Requirements

Core courses

	COMP	104	Programming Fundamentals and Methodology	[3-1-2:4]
	COMP	151	Object-Oriented Programming	[3-0-2:3]
	COMP	171	Data Structures and Algorithms	[3-2-0:3]
	COMP	252	Operating Systems	[3-0-2:3]
	ELEC	102	Electronic Circuits I	[3-1-3:5]
	ELEC	151	Digital Circuits and Systems	[3-1-2:4]
	ELEC	152	Computer Organization	[3-0-1:3]
	ELEC	254	Microprocessor Experiments	[1-1-3:3]
	ELEC	290	Introduction to Electronic and Computer Technology	[2-0-0:1]
	IELM	311	Engineers in Society	[1-0-0:1]
(1)	MATH	021	Concise Calculus	[3-1-0:4]

Required courses

	COMP	170	Discrete Mathematical Tools for Computer Science	[3-1-0:4]
(2)	COMP	211	Introduction to Software Engineering	[3-1-1:4]
	COMP	381	Design and Analysis of Computer Architectures	[3-1-0:3]
(3)	ELEC	097	Industrial Training	[0 credit]
	ELEC	211	Signals and Systems	[3-1-1:4]
	ELEC	301	CMOS VLSI Design	[2-0-3:3]
	COMP	271	Design and Analysis of Algorithms	[3-1-0:3]
or	ELEC	214	Communication Systems	[3-1-3:5]
	COMP	361	Computer Communication Networks I	[3-0-1:3]
or	ELEC	315	Computer Communication Networks	[3-1-0:3]
(4) ⌈	COMP	394	Computer Engineering Final Year Project I	[0-0-6:2]
or	ELEC	394		
	COMP	395	Computer Engineering Final Year Project II	[0-0-9:3]
or	ELEC	395		
	COMP	396	Computer Engineering Final Year Project III	[0-0-9:3]
or	ELEC	396		
	ELEC	210	Probability and Random Processes in Engineering	[3-1-0:4]
	MATH	113	Introduction to Linear Algebra	[2-1-0:2]
	MATH	150	Introduction to Ordinary Differential Equations	[2-1-0:2]

Elective courses

	Elective types		Minimum no. of courses	Minimum total credits
(5)	COMP or ELEC	Computer Science Elective Electrical and Electronic Engineering Elective	2	6
(6)	ENGG or SCIE	Engineering Elective Science Elective	2	6 or 8
(7,9)	FREE	Free Elective	1	2 or 3

General Education Requirements

Electives must be selected from amongst those general education courses that are listed under the section "Designated General Education Courses for Undergraduate Students".

	Elective types		Minimum no. of courses	Minimum total credits
(8,9)	GEE(SCIE) or GEE(SB&M) or GEE(H&SS)	Science General Education Elective Business and Management General Education Elective Humanities and Social Science General Education Elective	-	12

Required Courses in English Communication

(10)	LANG 106	English for Engineering Students I	[0-2-0:1]
	LANG 206	English for Engineering Students II	[0-2-0:1]
	LANG 306	English for Engineering Students III	[0-2-0:1]

Other Requirements

	ELEC 010	Academic and Professional Development I	[0 credit]
	ELEC 020	Academic and Professional Development II	[0 credit]
	ELEC 030	Academic and Professional Development III	[0 credit]
(11)	HLTH 001	Healthy Life Style	[0 credit]

Notes:
(1) Students who have grade E or better in AL Pure Mathematics or in AL Applied Mathematics are not required to take MATH 021.
(2) With prior approval from the CPEG UG coordinator, students may take MATH 132 to fulfill the requirement of COMP 170.
(3) Students are required to complete and pass a prescribed training program within the normal length of study. Details of the program, its requirements and schedule will be announced on the website of the Industrial Training Center *(http://www.ust.hk/itc)* or website of the department in the first year Fall Semester. Training normally takes place in the Winter and Summer Sessions starting from the first year of study. For recording the overall training results, students are normally registered for the course in their last semester of study.
(4) Work normally commences in summer following the second year. CPEG students who follow the honors study track of COMP courses may choose to take COMP/ELEC 387, 388, 389 to fulfill the requirement of COMP/ELEC 394, 395, 396.

(5) Normally only ELEC or COMP courses at 200-level or above will be accepted. COMP 231 and COMP 362 are recommended electives. Students with particular interest in the following areas are encouraged to take their respective courses:

Intelligent Robotic Systems:	COMP 221, COMP 327, COMP 328, COMP 344, COMP 524, ELEC 271, ELEC 341, ELEC 374, ELEC 377, ENGG 395
Networks and Communications:	COMP 303, COMP 362, COMP 364, ELEC 314, ELEC 332, ELEC 343
Multimedia Computing and Processing:	COMP 341, COMP 342, COMP 343, COMP 344, ELEC 317, ELEC 360, ELEC 384
VLSI and Computer Systems:	COMP 271, COMP 572, COMP 573, ELEC 202, ELEC 221, ELEC 303, ELEC 304, ELEC 321, ELEC 322
Speech Processing and Language Engineering:	COMP 327, COMP 328, COMP 526, ELEC 212, ELEC 331, ELEC 333

ENGG 351, ENGG 395, IELM 201, IELM 225, IELM 313 and IELM 331 may count toward the ELEC or COMP elective requirement. Students who have earned a total of 3 extra credits through taking COMP 151H, COMP 271H, COMP 190, COMP 290 or COMP 390 may reduce the COMP elective requirements by one course and three credits.

(6) Students opting for ELEC 214 are required to take a minimum total of 6 credits of ENGG or SCIE electives. Students opting for COMP 271 are required to take a minimum total of 8 credits of ENGG or SCIE electives. Only ENGG or SCIE courses at 100-level or above can be used to satisfy the ENGG or SCIE elective requirement.

(7) Students who are required to take MATH 021 should take FREE elective of 2 credits or above. Students who are not required to take MATH 021 should take FREE elective of 3 credits or above.

(8) Of these courses, at least one course in Humanities and one in Social Science is required. SOSC 111 is a recommended elective.

(9) Certain courses cannot be used to count toward the FREE and GEE requirement. Students must check the program website at *http://www.cpeg.ust.hk/gee-exclude.htm* for the list of courses in concern.

(10) The course can also be replaced by LANG 101.

(11) Students are required to take and pass this course in their first year of study. Details of the course and its requirements are announced on the course website *http://www.ab.ust.hk/sao/ HLTH001* managed by the Student Affairs Office.

A minimum of 102 credits is required for the BEng program in Computer Engineering. For students who are required to take MATH 021, the minimum total required is 105 credits.

Recommended Pattern of Study for the BEng in Computer Engineering

1st year	Fall	C	COMP 104, ELEC 102, MATH 021[a]	
		R	COMP 170, ELEC 010, HLTH 001, LANG 106	
		E	GEE[b]	(Total: 16[b] / 17[a] credits)
	Spring	C	COMP 151, COMP 171, ELEC 151, ELEC 152	
		R	ELEC 010, HLTH 001, LANG 106, MATH 113, MATH 150	(Total: 18[c] credits)
2nd year	Fall	C	COMP 252, ELEC 254, ELEC 290	
		R	ELEC 020, ELEC 211, ELEC 210, LANG 206	
		E	GEE	(Total: 18 credits)

	Spring	R	COMP 271/ELEC 214[d], COMP 361/ELEC 315, COMP/ELEC 394[e], ELEC 020, ELEC 301, LANG 206	
		E	ENGG/SCIE[d]	(Total: 16[c] / 17[c] credits)

3rd year	Fall	R	COMP 211, COMP 381, COMP/ELEC 395[e], ELEC 030, LANG 306	
		E	COMP/ELEC, GEE, FREE[a]	(Total: 16[b] / 18[a] credits)
	Spring	C	IELM 311	
		R	COMP/ELEC 396[e], ELEC 030, ELEC 097, LANG 306	
		E	COMP/ELEC, ENGG/SCIE[d], GEE[b] / two GEE[a], FREE[b]	(Total: 17[c] / 18[c] credits)

(a) Students who do not have grade E or better in AL Pure Mathematics or in AL Applied Mathematics are required to take MATH 021 in 1st year Fall, one FREE in 3rd year Fall and two GEE in 3rd year Spring.

(b) Students who have grade E or better in AL Pure Mathematics or in AL Applied Mathematics are not required to take MATH 021, they should take one GEE in 1st year Fall, one GEE plus one FREE in 3rd year Spring.

(c) LANG 106, LANG 206 and LANG 306 are two-semester courses. The course credit (1 credit) will be earned on completion of the courses at the end of the respective Spring Semester.

(d) Students opting for ELEC 214 are required to take a minimum total of 6 credits of ENGG or SCIE electives. Those opting for COMP 271 are required to take a minimum total of 8 credits of ENGG or SCIE electives.

(e) CPEG students who follow the honors study track of COMP courses may choose to take COMP/ELEC 387, 388, 389 to fulfill the requirement of COMP/ELEC 394, 395, 396.

C = core course; R = required course; E = elective course