Computer Engineering
Applicable to students admitted in 2020-21

Major Programme Requirement (for Associate Degree or Higher Diploma holders admitted to senior-year places)

Students are required to complete a minimum of 52 units of courses as follows:

		Units
1.	Faculty Package: ENGG1120/ESTR1005	3
2.	Foundation Courses: MATH1510	3
3.	Required Courses[a]:	
(a)	CENG2010, 2030, CENG2400/ESTR2100, CENG3420, CSCI2100/ESTR2102, CSCI3100, CSCI3150/ESTR3102, CSCI3190, 3250, 3251, ENGG2020/ESTR2104	28
(b)	Research Component Courses[b]: CENG4998, 4999	6
4.	Choose any ONE from the following three options:	12

(a) <u>General Computer Engineering</u>
Elective Courses:
Choose at least 9 units from the following:
CENG3410, CENG3430/ESTR3100, CENG4100, 4120, 4480, 5030, 5050, 5270, CENG5410/ENGG5101, CSCI4180/ESTR4106, CSCI5390, ELEG3205, ELEG4201/4211, IERG4300/ESTR4300
Remaining units can be chosen from the following:
AIST/CENG/CSCI/ELEG courses at 2000 or above level, ENGG1820, (ENGG3802 and 3803)

(b) <u>Stream 1: Embedded Systems</u>
Required Courses:
CENG3430/ESTR3100, CENG4480
Elective Courses:
Remaining units can be chosen from the following:
CENG3410, 4100, 5030, 5050, 5430, CSCI3260, 3280, 3310, CSCI4430/ESTR4120, ENGG1820, (ENGG3802 and 3803), IERG4300/ESTR4300, MAEG3060/ESTR3408, MAEG4040/ ESTR4414

(c) <u>Stream 2: VLSI Design and EDA</u>
Elective Courses:
Choose at least 9 units from the following:
CENG3430/ESTR3100, CENG4120, 5030, 5270, ELEG3101, 3202, 3205, 3301, 4211, 4311
Remaining units can be chosen from the following:
AIST/CENG/CSCI/ELEG courses at 2000 or above level, ENGG1820, (ENGG3802 and 3803), IERG4300/ESTR4300

Total:	**52**

In addition to fulfilling the above Major Programme Requirement, students may also challenge themselves by taking the following stream offered by the Faculty:

<u>Engineering Leadership, Innovation, Technology and Entrepreneurship (ELITE) Stream</u>[c]
Elective Courses:
15 units of courses[d]:
i) 12 units of ESTR courses of which at most 6 units of courses at 1000 or 2000 level and at least 6 units of courses at 3000 or 4000 level[e]
ii) 3 units of BMEG/CENG/CSCI/ELEG/ENGG/IERG/MAEG/SEEM courses at 5000 level[f]

Explanatory Notes:
1. AIST/BMEG/CENG/CSCI/EEEN/ELEG/ENER/ENGG/ESTR/IERG/MAEG/SEEM courses at 2000 and above level will be included in the calculation of Major GPA for honours classification, excluding courses in Faculty Package and Foundation courses.
[a] Student may be required to take an additional course ELEG2202 if deemed necessary.
[b] Students who have declared to specialize in the ELITE Stream will be required to complete 6 units of ESTR4998 and 4999 to substitute for CENG4998 and 4999.

<table>
<tr><td>[c]</td><td>Details of the entrance and coursework requirements, and declaration procedures for the ELITE Stream can be found at the ELITE website (www.erg.cuhk.edu.hk/elite).</td></tr>
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Non-ELITE Engineering students may be allowed to take ESTR courses. Students are required to seek approval from their respective Major Programmes for using ESTR courses taken to fulfill the Major Programme Requirement. Details are available at the ELITE website.

[d] Students can use up to 9 units of courses which have been taken to fulfill the requirements of items 1 to 4 above to fulfill the elective requirements of the ELITE Stream. Item 3(b) Research Component Courses will not be included in these 9 units. A full list of ESTR courses is available at the ELITE website.

[e] Students can use BMEG/CENG/CSCI/ELEG/ENGG/IERG/MAEG/SEEM courses at 5000 level to substitute for ESTR courses at 3000 or 4000 level, subject to the approval of the Stream Director and the Associate Dean (Education).

[f] The requirement of at least 3 units of Engineering courses at 5000 level is a requirement for the ELITE Stream only. It should not be interpreted as a requirement of the Major Programme.

	Recommended Course Pattern	Units
First Year of Attendance	1st term Faculty Package: Major Required: CENG2010, CENG2400/ESTR2100, CSCI3190, ENGG2020/ESTR2104, MATH1510 Major Elective(s):	13
	2nd term Faculty Package: ENGG1120/ESTR1005 Major Required: CENG2030, 3420, CSCI2100/ESTR2102 Major Elective(s):	3 9
Second Year of Attendance	1st term Major Required: CENG4998, CSCI3150/ESTR3102 Major Elective(s): 9 units from stream required courses / major elective courses	6 9
	2nd term Major Required: CENG4999, CSCI3100, 3250, 3251 Major Elective(s): 3 units from stream required courses / major elective courses	9 3
Total (including Faculty Package):		**52**

Course List		
Course Code	*Course Title*	*Unit(s)*
CENG2010	Digital Logic Design Laboratory	1
CENG2030	Fundamentals of Embedded Systems	3
CENG2400	Embedded System Design	3
CENG3410	Smart Hardware Design	3
CENG3420	Computer Organization and Design	3
CENG3430	Rapid Prototyping of Digital Systems	3
CENG4100	Smartphones: Hardware Platform and Application Development	3
CENG4120	Computer-aided Design for Very Large Scale Integrated Circuits	3
CENG4480	Embedded System Development and Applications	3
CENG4998	Final Year Project I	3
CENG4999	Final Year Project II	3
CENG5030	Energy Efficient Computing	3
CENG5050	Hardware for Human Machine Interface	3
CENG5270	EDA for Physical Design of Digital Systems	3
CENG5410	Advanced Computer Architecture	3
ENGG1310	Engineering Physics: Electromagnetics, Optics and Modern Physics	3
ENGG1820	Engineering Internship	1
ENGG2020	Digital Logic and Systems	3
ENGG2720	Complex Variables for Engineers	2
ENGG2740	Differential Equations for Engineers	2
ENGG2760	Probability for Engineers	2
ENGG2780	Statistics for Engineers	2
ENGG3802	Introduction to Engineering Entrepreneurship	1
ENGG3803	Engineering Entrepreneurship Development Project	2
ENGG5101	Advanced Computer Architecture	3
ESTR1003	Engineering Physics: Electromagnetics, Optics and Modern Physics	3
ESTR2014	Complex Variables for Engineers	2
ESTR2016	Differential Equations for Engineers	2
ESTR2018	Probability for Engineers	2
ESTR2020	Statistics for Engineers	2
ESTR2100	Embedded System Design	3
ESTR2104	Digital Logic and Systems	3
ESTR3100	Rapid Prototyping of Digital Systems	3