

Computer Science
Applicable to students admitted in 2021-22

Major Programme Requirement

Students are required to complete a minimum of 75 units of courses as follows:

| | Units |
|--|-------|
| 1. Faculty Package: ENGG1110/ESTR1002, ENGG1120/ESTR1005, ENGG1130/ ESTR1006 | 9 |
| 2. Foundation Courses: | |
| (a) Any one course from the following: Chemistry Courses: CHEM1380 Life Science Courses: LSCI1001, 1003 Physics Courses[a]: ENGG1310/ESTR1003, PHYS1003, 1110 | 3 |
| (b) CSCI1130/ESTR1102 | 3 |
| (c) ENGG2440/ESTR2004, ENGG2760/ESTR2018, ENGG2780/ESTR2020, MATH1510[b] | 10 |
| 3. Required Courses: | |
| (a) CENG3420, CSCI2100/ESTR2102, CSCI3100, 3130, CSCI3150/ESTR3102, CSCI3160/ESTR3104, CSCI3180/ESTR3106, CSCI3250, 3251, ENGG2020/ESTR2104 | 27 |
| (b) Research Component Courses[d]: CSCI4998, 4999 | 6 |
| 4. Choose any ONE from the following seven options: | 17 |
| (a) <u>General Computer Science</u> Elective Courses: Choose 17 units from AIST4010/ESTR4140, CSCI3230/ESTR3108, CSCI4180/ESTR4106, CSCI4250/ESTR4122, CSCI4430/ESTR4120, ENGG1820, (ENGG3802 and 3803), IERG4300/ESTR4300, STAT2005, 2006 and the AIST/CENG/CSCI courses of which at least 15 units must be from courses at 3000 or above level | |
| (b) <u>Stream 1: Intelligence Science</u> Required Courses: CSCI3230/ESTR3108 Elective Courses: Choose at least 9 units from the following: AIST3510/SEEM3510, AIST4010/ESTR4140, CSCI3220, 3320, 4190, 4230, CSCI4250/ESTR4122, CSCI5030, 5050, 5150, CSCI5160/ENGG5102, CSCI5170, CSCI5180/ENGG5103, CSCI5240, CSCI5250/ENGG5106, CSCI5280/ENGG5104, CSCI5350, 5390, CSCI5510/ENGG5108, CSCI5580, 5640, ENGG5781, IERG3320, IERG4300/ESTR4300 Remaining units can be chosen from the following: AIST/CENG/CSCI courses at 2000 or above level, ENGG1820, (ENGG3802, 3803), STAT2005, 2006 | |
| (c) <u>Stream 2: Database and Information Systems</u> Required Courses: CSCI3170 Elective Courses: Choose at least 9 units from the following: CSCI3220, CSCI3230/ESTR3108, CSCI3320, 4140, CSCI4160/ESTR4104, CSCI4180/ESTR4106, CSCI4190, CSCI4430/ESTR4120, CSCI5010, 5120, CSCI5180/ENGG5103, CSCI5250/ENGG5106, CSCI5470/ENGG5105, CSCI5510/ENGG5108, CSCI5550, 5570, 5590, 5620, 5630, 5650, ENGG5781, IERG4300/ESTR4300, IERG4330, SEEM3490, 4630, 5010 Remaining units can be chosen from the following: AIST/CENG/CSCI courses at 2000 or above level, ENGG1820, (ENGG3802 and 3803), STAT2005, 2006 | |
| (d) <u>Stream 3: Rich Media</u> Required Courses: CSCI3260, 3280 Elective Courses: Choose at least 6 units from the following: AIST2010, AIST3510/SEEM3510, CSCI3230/ESTR3108, CSCI3290, 4120, CSCI4160/ESTR4104, CSCI4430/ESTR4120, CSCI5210, CSCI5280/ENGG5104, CSCI5390, 5460, CSCI5510/ ENGG5108, CSCI5640 | |

Remaining units can be chosen from the following:
AIST/CENG/CSCI courses at 2000 or above level, ENGG1820, (ENGG3802 and 3803),
IERG4300/ESTR4300, STAT2005, 2006

(e) Stream 4: Distributed Systems, Networks and Security

Required Courses:

CSCI4180/ESTR4106, CSCI4430/ESTR4120

Elective Courses:

Choose at least 6 units from the following:

CSCI3310, CSCI4130/IERG4130/ESTR4306, CSCI4140, CSCI4160/ESTR4104, CSCI4190,
5080, 5390, 5440, CSCI5470/ENGG5105, CSCI5510/ENGG5108, CSCI5550, 5570, 5590,
5600, 5630, 5650, IERG4210, IERG4300/ESTR4300, IERG4350

Remaining units can be chosen from the following:

AIST/CENG/CSCI courses at 2000 or above level, ENGG1820 (ENGG3802 and 3803),
STAT2005, 2006

(f) Stream 5: Algorithms and Complexity

Elective Courses:

Choose at least 12 units from the following:

CSCI3220, 4230, CSCI4250/ESTR4122, CSCI5010, CSCI5160/ENGG5102, CSCI5170, 5240,
5320, 5350, 5440, 5450, 5560, 5580, 5620, IERG3300/ESTR3304, IERG5154, MATH3260,
4230, 4260

Remaining units can be chosen from the following:

AIST/CENG/CSCI courses at 2000 or above level, ENGG1820, (ENGG3802 and 3803),
IERG4300/ESTR4300, STAT2006

(g) Stream 6: Data Analytics

Required Courses:

CSCI3320, STAT2006

Elective Course 1:

Choose at least 6 units from the following:

AIST4010/ESTR4140, CSCI3170, 3220, CSCI4180/ESTR4106, CSCI4190, 4230,
CSCI4250/ESTR4122, CSCI5030, 5050, 5120, 5150, CSCI5180/ENGG5103,
CSCI5510/ENGG5108, CSCI5550, 5570, 5580, 5620, 5640, 5650, IERG4230,
IERG4330/ESTR4316

Elective Course 2:

Choose at least 3 units from the following:

RMSC4002, STAT3004, 4002, 4003, 4006

Remaining units can be chosen from the following:

AIST/CENG/CSCI courses at 2000 or above level, ENGG1820, (ENGG3802 and 3803),
IERG4300/ESTR4300, STAT2003, 2005

Total: 75

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

Engineering Leadership, Innovation, Technology and Entrepreneurship (ELITE) Stream[e]

Elective Courses:

15 units of courses[f]:

- 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[g]
- ii) 3 units of BMEG/CENG/CSCI/ELEG/ENGG/IERG/MAEG/SEEM courses at 5000 level[h]

Explanatory Notes:

1. Students who have fulfilled the Major Programme Requirements of their respective Engineering programmes (or equivalent courses as approved by the Sub-Committee on Education Technologies) will be eligible to apply for exemption of 1 unit of University Core IT Requirement. Students are required to apply for the exemption. When exemption from a particular course is recognized, students can only be exempted from the course but not the units. Please follow the application procedures as announced by the IT Foundation Course Office at <https://engg1000.cse.cuhk.edu.hk>.
2. 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] The Physics course shall be taken in accordance with students' HKDSE results or placement test results as follows:

- i) Students who have attained Level 4 or above in HKDSE Mathematics (Compulsory Part) AND Level 4 or above in Physics or Level 5 or above in Combined Science with Physics Component shall take ENGG1310/ESTR1003 or PHYS1110.

| | | |
|-----|------|--|
| | ii) | Students with HKDSE results but did not attain the academic levels as stated in (i) shall take PHYS1003. |
| | iii) | Students without HKDSE results shall sit for the placement test arranged by the Department of Physics. Students who pass the placement test shall take ENGG1310/ESTR1003 or PHYS1110. Students who fail or are absent from the placement test shall take PHYS1003. |
| [b] | i) | Non-JUPAS admittees and JUPAS admittees with HKDSE Mathematics Extended Modules I or II are required to attend a Mathematics Placement Test. Students who fail or are absent from the Placement Test will be required to take MATH1020 in the same term when they take MATH1510. |
| | ii) | JUPAS admittees without HKDSE Mathematics Extended Modules I or II are required to take MATH1020 concurrently with MATH1510. |
| | iii) | Students who fail MATH1510 in Term 1 will have to retake the course in Term 2. The pre-assigned course, ENGG1130, will also be dropped. |
| [c] | | Students who have declared to specialize in the ELITE Stream will be required to complete 6 units of ESTR4998 and 4999 to substitute for CSCI4998 and 4999. |
| [d] | | 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). 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. |
| [e] | | 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. |
| [f] | | 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). |
| [g] | | 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 | 1 st term Faculty Package: ENGG1110/ESTR1002 Major Required: CHEM1380/ENGG1310/ESTR1003/LSCI1001/1003/ PHYS1003/1110, MATH1510 | 3 3-6 |
| | 2 nd term Faculty Package: ENGG1120/ESTR1005, ENGG1130/ESTR1006 Major Required: CHEM1380/ENGG1310/ESTR1003/LSCI1001/1003/ PHYS1003/1110 | 6 0-3 |
| Second Year of Attendance | 1 st term Major Required: CSCI1130/ESTR1102, ENGG2020/ESTR2104, ENGG2440/ESTR2004, ENGG2760/ESTR2018 Major Elective(s): | 11 |
| | 2 nd term Major Required: CENG3420, CSCI2100/ESTR2102, ENGG2780/ ESTR2020 Major Elective(s): | 8 |
| Third Year of Attendance | 1 st term Major Required: CSCI3130, CSCI3150/ESTR3102, CSCI3160/ ESTR3104 Major Elective(s): 3 units from stream required course / major elective courses | 9 3 |
| | 2 nd term Major Required: CSCI3100, CSCI3180/ESTR3106, CSCI3250, 3251 Major Elective(s): 3 units from stream required course / major elective courses | 9 3 |
| | 1 st term Major Required: CSCI4998 Major Elective(s): 6 units from major elective courses / stream elective courses | 3 6 |
| Fourth Year of Attendance | 2 nd term Major Required: CSCI4999 Major Elective(s): 5 units from major elective course / stream elective course | 3 5 |
| | Total (including Faculty Package): | 75 |