

Mechanical and Automation Engineering
Applicable to students admitted in 2012-13

Major Programme Requirement

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

	Units
1. Faculty Package: ENGG1100/ESTR1000, ENGG1110/ESTR1002, ENGG2600/ ESTR2008	9
2. Foundation Science Courses:	9
(a) 6 units of Physics:	
(i) ENGG1310/2520/ESTR2006[a], PHYS1110 OR	
(ii) PHYS1003[b], 1110	
(b) 3 units of other Science Course: CHEM1070, 1280, 1380, LSCI1001, 1003	
3. Foundation Mathematics Courses: ENGG1410/ESTR1004, ENGG2420/ESTR2000, ENGG2430/ ESTR2002, MATH1510	12
4. Required Courses:	
(a) ELEG2202, MAEG2020/ESTR2400, MAEG2030/ESTR2402, MAEG3010, MAEG3020/ESTR3404, MAEG3050/ESTR3406	18
(b) Research Component Courses[c]: MAEG4998, 4999	6
5. Elective Courses (at least 9 units of courses at MAEG4000 and above level or ENGG5000 level):	21
(a) <u>Breadth Electives</u> (12 units chosen from the following courses): CSCI1020, 1040, 1050, CSCI2100/ESTR2102, CSCI2120, 2800, 3170, ELEG2401, 3101, ENER2010[ENGG1500], ENER2020, ENER3030/ESTR3402, ENGG1820, ENGG2020/ESTR2104, MAEG1010, 2010, 3030, 3040, MAEG3060/ESTR3408, MAEG3070, 3080, 3920, 5040, MAEG5050/ENGG5404, MAEG5080, 5120, MGNT1010, 4090, SEEM2440/ESTR2500 (or DSME1030), SEEM3450/ESTR3502, SEEM3490, 3500	
(b) <u>Depth Electives</u> (9 units chosen from the following courses): ENER4010/ESTR4400, ENER4020/ESTR4402, ENER4030/ ESTR4404, ENER4040/ESTR4406, ENER4050/ESTR4422, ENER4060/ESTR4424, MAEG4010/ESTR4408, MAEG4020/ ESTR4410, MAEG4030/ESTR4412, MAEG4040/ESTR4414,	

MAEG4050/ESTR4416, MAEG4060, MAEG4070/ESTR4418,
MAGE4080/ESTR4420, MAEG5010/ENGG5402, MAEG5020/
ENGG5403, MAEG5030, 5060, 5070, 5090, MAEG5100/
ENGG5405, MAEG5110

Streams

Students may choose not to specialize in any stream or to specialize in one of the four streams and complete a minimum of 15 units of courses prescribed by the stream.

Design

- (a) Required Courses:
CSCI1020, MAEG2010, 3040
- (b) Elective Courses:
ENER3030/ESTR3402, MAEG3070, 3920, MAEG4010/
ESTR4408, MAEG4020/ESTR4410, MAEG4060, MAEG4070/
ESTR4418, MAEG5030, MAEG5100/ENGG5405

Energy

- (a) Required Courses:
ENER2010[ENGG1500], 2020, MAEG3030
- (b) Elective Courses:
ENER3030/ESTR3402, ENER4010/ESTR4400, ENER4020/
ESTR4402, ENER4030/ESTR4404, ENER4040/ESTR4406,
ENER4050/ESTR4422, ENER4060/ESTR4424, MAEG4030/
ESTR4412, MAEG4080/ESTR4420, MAEG5120

Mechatronics

- (a) Required Courses:
CSCI1020, MAEG4040/ESTR4414, MAEG4050/ESTR4416
- (b) Elective Courses:
ELEG2401, ENER3030/ESTR3402, ENGG2020/ESTR2104,
MAEG3080, MAEG5050/ENGG5404, MAEG5080

Robotics

- (a) Required Courses:
CSCI1020, MAEG1010, MAEG3060/ESTR3408
- (b) Elective Courses:
ENER3030/ESTR3402, MAEG4010/ESTR4408, MAEG5010/
ENGG5402, MAEG5040, MAEG5050/ENGG5404, MAEG5090,
5120

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[d]

Elective Courses:

15 units of courses[e]:

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

Explanatory Notes:

1. Students who have completed the courses ENGG1110/ESTR1002 and ENGG2600/ESTR2008 (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/index.html>.
2. BMEG/CENG/CSCI/EEEN/ELEG/ENER/ENGG/ESTR/IERG/MAEG/SEEM courses at 2000 and above level and ENGG1310 will be included in the calculation of Major GPA for honours classification.
3. Students satisfying all the requirements of a stream (except the ELITE Stream, which will be officially recorded on the academic transcript) will be given a certifying letter upon request. Further information is available from the Department.
 - [a] For students who have attained Level 3 or above in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [b] For students who have attained Level 2 or below in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [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 MAEG4998 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 5 above (excluding item 4(b) Research Component Courses) to fulfill the elective requirements of the ELITE Stream. 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.
 - [] Old course code used in 2012-13 and before.

	Recommended Course Pattern	Units
First Year of Attendance	1 st term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/LSCI1001, MATH1510, PHYS1110 (or 1003) Major Elective(s):	3 6-9
	2 nd term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/LSCI1003, ENGG1310/2520/ESTR2006 (or PHYS1110), ENGG1410/ESTR1004 Major Elective(s):	3 6-9
Second Year of Attendance	1 st term Major Required: ENGG2420/ESTR2000, MAEG2020/ESTR2400 Major Elective(s): 1 Breadth Elective course	6 2-3
	2 nd term Faculty Package: ENGG2600/ESTR2008 Major Required: ELEG2202, ENGG2430/ESTR2002, MAEG2030/ESTR2402 Major Elective(s):	3 9
Third Year of Attendance	1 st term Major Required: MAEG3010, MAEG3050/ESTR3406 Major Elective(s): 0 or 1 Breadth Elective course	6 0-3
	2 nd term Major Required: MAEG3020/ESTR3404 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
Fourth Year of Attendance	1 st term Major Required: MAEG4998 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
	2 nd term Major Required: MAEG4999 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
Total (including Faculty Package):		75

Mechanical and Automation Engineering
Applicable to students admitted in 2013-14

Major Programme Requirement

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

	Units
1. Faculty Package: ENGG1100/ESTR1000, ENGG1110/ESTR1002, ENGG2600/ ESTR2008	9
2. Foundation Science Courses:	9
(a) 6 units of Physics:	
(i) ENGG1310/2520/ESTR2006[a], PHYS1110 OR	
(ii) PHYS1003[b], 1110	
(b) 3 units of other Science Course: CHEM1070, 1280, 1380, LSCI1001, 1003	
3. Foundation Mathematics Courses: ENGG1410/ESTR1004, ENGG2420/ESTR2000, ENGG2430/ ESTR2002, MATH1510	12
4. Required Courses:	
(a) ELEG2202, MAEG2020/ESTR2400, MAEG2030/ESTR2402, MAEG3010, MAEG3020/ESTR3404, MAEG3050/ESTR3406	18
(b) Research Component Courses[c]: MAEG4998, 4999	6
5. Elective Courses (at least 9 units of courses at MAEG4000 and above level or ENGG5000 level):	21
(a) <u>Breadth Electives</u> (12 units chosen from the following courses): CSCI1020, 1040, 1050, CSCI2100/ESTR2102, CSCI2120, 2800, 3170, ELEG2401, 3101, ENER2010, 2020, ENER3030/ ESTR3402, ENGG1820, ENGG2020/ESTR2104, MAEG1010, 2010, 3030, 3040, MAEG3060/ESTR3408, MAEG3070, 3080, 3920, 5040, MAEG5050/ENGG5404, MAEG5080, 5120, MGNT1010, 4090, SEEM2440/ESTR2500 (or DSME1030), SEEM3450/ESTR3502, SEEM3490, 3500	
(b) <u>Depth Electives</u> (9 units chosen from the following courses): ENER4010/ESTR4400, ENER4020/ESTR4402, ENER4030/ ESTR4404, ENER4050/ESTR4422, ENER4060/ESTR4424, MAEG4010/ESTR4408, MAEG4020/ESTR4410, MAEG4030/ ESTR4412, MAEG4040/ESTR4414, MAEG4050/ESTR4416,	

MAEG4060, MAEG4070/ESTR4418, MAEG4080/ESTR4420,
MAEG5010/ENGG5402, MAEG5020/ENGG5403, MAEG5030,
5060, 5070, 5090, MAEG5100/ENGG5405, MAEG5110

Streams

Students may choose not to specialize in any stream or to specialize in one of the four streams and complete a minimum of 15 units of courses prescribed by the stream.

Design

- (a) Required Courses:
CSCI1020, MAEG2010, 3040
- (b) Elective Courses:
ENER3030/ESTR3402, MAEG3070, 3920, MAEG4010/
ESTR4408, MAEG4020/ESTR4410, MAEG4060, MAEG4070/
ESTR4418, MAEG5030, MAEG5100/ENGG5405

Energy

- (a) Required Courses:
ENER2010, 2020, MAEG3030
- (b) Elective Courses:
ENER3030/ESTR3402, ENER4010/ESTR4400, ENER4020/
ESTR4402, ENER4030/ESTR4404, ENER4050/ESTR4422,
ENER4060/ESTR4424, MAEG4030/ESTR4412, MAEG4080/
ESTR4420, MAEG5120

Mechatronics

- (a) Required Courses:
CSCI1020, MAEG4040/ESTR4414, MAEG4050/ESTR4416
- (b) Elective Courses:
ELEG2401, ENER3030/ESTR3402, ENGG2020/ESTR2104,
MAEG3080, MAEG5050/ENGG5404, MAEG5080

Robotics

- (a) Required Courses:
CSCI1020, MAEG1010, MAEG3060/ESTR3408
- (b) Elective Courses:
ENER3030/ESTR3402, MAEG4010/ESTR4408, MAEG5010/
ENGG5402, MAEG5040, MAEG5050/ENGG5404, MAEG5090,
5120

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[d]

Elective Courses:
15 units of courses[e]:

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

Explanatory Notes:

1. Students who have completed the courses ENGG1110/ESTR1002 and ENGG2600/ESTR2008 (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/index.html>.
2. BMEG/CENG/CSCI/EEEN/ELEG/ENER/ENGG/ESTR/IERG/MAEG/SEEM courses at 2000 and above level and ENGG1310 will be included in the calculation of Major GPA for honours classification.
3. Students satisfying all the requirements of a stream (except the ELITE Stream, which will be officially recorded on the academic transcript) will be given a certifying letter upon request. Further information is available from the Department.
 - [a] For students who have attained Level 3 or above in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [b] For students who have attained Level 2 or below in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [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 MAEG4998 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 5 above (excluding item 4(b) Research Component Courses) to fulfill the elective requirements of the ELITE Stream. 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
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First Year of Attendance	1 st term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/LSCI1001/1003, MATH1510, PHYS1110 (or 1003) Major Elective(s):	3 6-9
	2 nd term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/LSCI1001/1003, ENGG1310/2520/ESTR2006 (or PHYS1110), ENGG1410/ ESTR1004 Major Elective(s):	3 6-9
Second Year of Attendance	1 st term Major Required: ENGG2420/ESTR2000, MAEG2020/ ESTR2400 Major Elective(s): 0 or 1 Breadth Elective course	6 0-3
	2 nd term Faculty Package: ENGG2600/ESTR2008 Major Required: ELEG2202, ENGG2430/ESTR2002, MAEG2030/ESTR2402 Major Elective(s):	3 9
Third Year of Attendance	1 st term Major Required: MAEG3010, MAEG3050/ESTR3406 Major Elective(s): 0 or 1 Breadth Elective course	6 0-3
	2 nd term Major Required: MAEG3020/ESTR3404 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
Fourth Year of Attendance	1 st term Major Required: MAEG4998 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
	2 nd term Major Required: MAEG4999 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
Total (including Faculty Package):		75

**Mechanical and Automation Engineering
Applicable to students admitted in 2014-15**

Major Programme Requirement

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

	Units
1. Faculty Package: ENGG1100/ESTR1000, ENGG1110/ESTR1002, ENGG2601, 2602	9
2. Foundation Science Courses:	9
(a) PHYS1110	
(b) i) One course from the following[a]: CHEM1070, 1280, 1380, ENGG1310/2520/ESTR1003/2006	
OR	
ii) One course from the following [b]: CHEM1070, 1280, 1380, ENGG1310/2520/ESTR1003/2006, LSCI1001, 1003	
(c) i) One course from the following[a][c]: ENGG1310/2520/ESTR1003/ 2006, LSCI1001, 1003	
OR	
ii) PHYS1003[b]	
3. Foundation Mathematics Courses: ENGG1410/ESTR1004, ENGG2420/ESTR2000, ENGG2430/ ESTR2002, MATH1510[d]	12
4. Required Courses:	
(a) ELEG2202#, MAEG2020/ESTR2400, MAEG2030/ESTR2402, MAEG3010, MAEG3020/ESTR3404, MAEG3050/ESTR3406	18
(b) Research Component Courses[e]: MAEG4998, 4999	6
5. Elective Courses (at least 9 units of courses at MAEG4000 and above level or ENGG5000 level):	21
(a) <u>Breadth Electives</u> (12 units chosen from the following courses): CSCI1020, 1040, 1050, CSCI2100#/ESTR2102, CSCI2120#, 2800#, 3170#, ELEG2401#, 3101#, ENER2010, 2020, ENER3030/ESTR3402, ENGG1820, ENGG2020/ESTR2104, MAEG1010, 2010, 3030, 3040, MAEG3060/ESTR3408, MAEG3070, 3080, 3920, 5040, MAEG5050/ENGG5404, MAEG5080, 5120, MGNT1010, 4090, SEEM2440#/ESTR2500 (or DSME1030), SEEM3450#/ESTR3502, SEEM3490#, 3500#	
(b) <u>Depth Electives</u> (9 units chosen from the following courses): ENER4010/ESTR4400, ENER4020/ESTR4402, ENER4030/	

ESTR4404, ENER4050/ESTR4422, ENER4060/ESTR4424, MAEG4010/ESTR4408, MAEG4020/ESTR4410, MAEG4030/ESTR4412, MAEG4040/ESTR4414, MAEG4050/ESTR4416, MAEG4060, MAEG4070/ESTR4418, MAEG4080/ESTR4420, MAEG5010/ENGG5402, MAEG5020/ENGG5403, MAEG5030, 5060, 5070, 5090, MAEG5100/ENGG5405, MAEG5110

Streams

Students may choose not to specialize in any stream or to specialize in one of the three streams and complete a minimum of 15 units of courses prescribed by the stream.

Design and Manufacturing

- (a) Required Courses:
CSCI1020, MAEG2010, 3040
- (b) Elective Courses:
ENER3030/ESTR3402, MAEG3060/ESTR3408, MAEG3070, 3080, 3920, MAEG4010/ESTR4408, MAEG4020/ESTR4410, MAEG4060, MAEG4070/ESTR4418, MAEG5030, MAEG5050/ENGG5404, MAEG5100/ENGG5405, MAEG5120, SEEM3500

Mechatronics

- (a) Required Courses:
CSCI1020, MAEG4040/ESTR4414, MAEG4050/ESTR4416
- (b) Elective Courses:
ELEG2401, ENER3030/ESTR3402, ENGG2020/ESTR2104, MAEG3080, MAEG5050/ENGG5404, MAEG5080

Robotics and Automation

- (a) Required Courses:
CSCI1020, MAEG3060/ESTR3408, MAEG4050/ESTR4416
- (b) Elective Courses:
ENER3030/ESTR3402, MAEG1010, MAEG4010/ESTR4408, MAEG5010/ENGG5402, MAEG5020/ENGG5403, MAEG5040, MAEG5050/ENGG5404, MAEG5090, 5120

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[f]

Elective Courses:

15 units of courses[g]:

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

Explanatory Notes:

1. Students who have completed the courses ENGG1110/ESTR1002, ENGG2601 and 2602 (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/index.html>.
2. EEEN, ENER, ENGG and MAEG courses at 2000 and above level as well as those labeled as #, and their reciprocal ESTR courses will be included in the calculation of Major GPA for honours classification, excluding courses in Faculty Package, Foundation Science courses and Foundation Mathematics courses.
3. Students satisfying all the requirements of a stream (except the ELITE Stream, which will be officially recorded on the academic transcript) will be given a certifying letter upon request. Further information is available from the Department.
 - [a] For students who have attained Level 3 or above in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [b] For students without HKDSE Physics or who have attained Level 2 or below in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [c] Courses used to fulfill item 2(b) requirement cannot be used to fulfill item 2(c) requirement.
 - [d] Students without HKDSE Mathematics Extended Modules I or II are required to take MATH1020 on top of the 12 units of the Foundation Mathematics Course requirements. MATH1020 will be exempted for students who opt to take and pass the assessment test in the first lecture of MATH1020.
 - [e] Students who have declared to specialize in the ELITE Stream will be required to complete 6 units of ESTR4998 and 4999 to substitute for MAEG4998 and 4999.
 - [f] 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.
 - [g] Students can use up to 9 units of courses which have been taken to fulfill the requirements of items 1 to 5 above (excluding item 4(b) Research Component Courses) to fulfill the elective requirements of the ELITE Stream. A full list of ESTR courses is available at the ELITE website.
 - [h] 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).
 - [i] 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: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/ENGG1310/2520/ ESTR1003/2006/LSCI1001/1003/PHYS1003/1110, MATH1510 Major Elective(s):	3 6-9
	2 nd term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/ENGG1310/2520/ ESTR1003/2006/LSCI1001/1003/PHYS1003/1110, ENGG1410/ESTR1004 Major Elective(s):	3 6-9
Second Year of Attendance	1 st term Major Required: ELEG2202, ENGG2420/ESTR2000, MAEG2020/ESTR2400 Major Elective(s):	9
	2 nd term Faculty Package: ENGG2601 Major Required: ENGG2430/ESTR2002, MAEG2030/ ESTR2402 Major Elective(s): 0 or 1 Breadth Elective course	2 6 0-3
	Summer session Faculty Package: ENGG2602	1
	1 st term Major Required: MAEG3010, MAEG3050/ESTR3406 Major Elective(s): 0 or 1 Breadth Elective course	6 0-3
Third Year of Attendance	2 nd term Major Required: MAEG3020/ESTR3404 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
	1 st term Major Required: MAEG4998 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
Fourth Year of Attendance	2 nd term Major Required: MAEG4999 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
	Total (including Faculty Package):	75

**Mechanical and Automation Engineering
Applicable to students admitted in 2015-16**

Major Programme Requirement

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

	Units
1. Faculty Package: ENGG1100/ESTR1000, ENGG1110/ESTR1002, ENGG2601, 2602	9
2. Foundation Science Courses:	9
(a) PHYS1110	
(b) i) One course from the following[a]: CHEM1070, 1280, 1380, ENGG1310/ESTR1003	
OR	
ii) One course from the following[b]: CHEM1070, 1280, 1380, ENGG1310/ESTR1003, LSCI1001, 1003	
(c) i) One course from the following[a][c]: ENGG1310/ ESTR1003, LSCI1001, 1003	
OR	
ii) PHYS1003[b]	
3. Foundation Mathematics Courses: ENGG1410/ESTR1004, ENGG2420/ESTR2000, ENGG2430/ ESTR2002, MATH1510[d]	12
4. Required Courses:	
(a) ELEG2202#, MAEG2020/ESTR2400, MAEG2030/ESTR2402, MAEG3010, MAEG3020/ESTR3404, MAEG3050/ESTR3406	18
(b) Research Component Courses[e]: MAEG4998, 4999	6
5. Elective Courses (at least 9 units of courses at MAEG4000 and above level or ENGG5000 level):	21
(a) <u>Breadth Electives</u> (12 units chosen from the following courses): CSCI1020, 1040, 1050, CSCI2100#/ESTR2102, CSCI2120#, 2800#, 3170#, ELEG2401#, 3101#, ENER2010, 2020, ENER3030/ESTR3402, ENGG1820, ENGG2020/ESTR2104, MAEG1010, 2010, 3030, 3040, MAEG3060/ESTR3408, MAEG3070, 3080, 3920, 5040, MAEG5050/ENGG5404, MAEG5080, 5120, MGNT1010, 4090, SEEM2440#/ESTR2500 (or DSME1030), SEEM3450#/ESTR3502, SEEM3490#, 3500#	
(b) <u>Depth Electives</u> (9 units chosen from the following courses): ENER4010/ESTR4400, ENER4020/ESTR4402, ENER4030/	

ESTR4404, ENER4050/ESTR4422, ENER4060/ESTR4424, MAEG4010/ESTR4408, MAEG4020/ESTR4410, MAEG4030/ESTR4412, MAEG4040/ESTR4414, MAEG4050/ESTR4416, MAEG4060, MAEG4070/ESTR4418, MAEG4080/ESTR4420, MAEG5010/ENGG5402, MAEG5020/ENGG5403, MAEG5030, 5060, 5070, 5090, MAEG5100/ENGG5405, MAEG5110

Streams

Students may choose not to specialize in any stream or to specialize in one of the three streams and complete a minimum of 15 units of courses prescribed by the stream.

Design and Manufacturing

- (a) Required Courses:
CSCI1020, MAEG2010, 3040
- (b) Elective Courses:
ENER3030/ESTR3402, MAEG3060/ESTR3408, MAEG3070, 3080, 3920, MAEG4010/ESTR4408, MAEG4020/ESTR4410, MAEG4060, MAEG4070/ESTR4418, MAEG5030, MAEG5050/ENGG5404, MAEG5100/ENGG5405, MAEG5120, SEEM3500

Mechatronics

- (a) Required Courses:
CSCI1020, MAEG4040/ESTR4414, MAEG4050/ESTR4416
- (b) Elective Courses:
ELEG2401, ENER3030/ESTR3402, ENGG2020/ESTR2104, MAEG3080, MAEG5050/ENGG5404, MAEG5080

Robotics and Automation

- (a) Required Courses:
CSCI1020, MAEG3060/ESTR3408, MAEG4050/ESTR4416
- (b) Elective Courses:
ENER3030/ESTR3402, MAEG1010, MAEG4010/ESTR4408, MAEG5010/ENGG5402, MAEG5020/ENGG5403, MAEG5040, MAEG5050/ENGG5404, MAEG5090, 5120

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[f]

Elective Courses:

15 units of courses[g]:

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

Explanatory Notes:

1. Students who have completed the courses ENGG1110/ESTR1002, ENGG2601 and 2602 (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/index.html>.
2. EEEN, ENER, ENGG and MAEG courses at 2000 and above level as well as those labeled as #, and their reciprocal ESTR courses will be included in the calculation of Major GPA for honours classification, excluding courses in Faculty Package, Foundation Science courses and Foundation Mathematics courses.
3. Students satisfying all the requirements of a stream (except the ELITE Stream, which will be officially recorded on the academic transcript) will be given a certifying letter upon request. Further information is available from the Department.
 - [a] For students who have attained Level 3 or above in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [b] For students without HKDSE Physics or who have attained Level 2 or below in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [c] Courses used to fulfill item 2(b) requirement cannot be used to fulfill item 2(c) requirement.
 - [d] Students without HKDSE Mathematics Extended Modules I or II are required to take MATH1020 on top of the 12 units of the Foundation Mathematics Course requirements. MATH1020 will be exempted for students who opt to take and pass the assessment test in the first lecture of MATH1020.
 - [e] Students who have declared to specialize in the ELITE Stream will be required to complete 6 units of ESTR4998 and 4999 to substitute for MAEG4998 and 4999.
 - [f] 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.
 - [g] Students can use up to 9 units of courses which have been taken to fulfill the requirements of items 1 to 5 above (excluding item 4(b) Research Component Courses) to fulfill the elective requirements of the ELITE Stream. A full list of ESTR courses is available at the ELITE website.
 - [h] 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).
 - [i] 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: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/ENGG1310/ ESTR1003/LSCI1001/1003/PHYS1003/1110, MATH1510 Major Elective(s):	3 6-9
	2 nd term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/ENGG1310/ ESTR1003/LSCI1001/1003/PHYS1003/1110, ENGG1410/ ESTR1004 Major Elective(s):	3 6-9
Second Year of Attendance	1 st term Major Required: ELEG2202, ENGG2420/ESTR2000, MAEG2020/ESTR2400 Major Elective(s):	9
	2 nd term Faculty Package: ENGG2601 Major Required: ENGG2430/ESTR2002, MAEG2030/ ESTR2402 Major Elective(s): 0 or 1 Breadth Elective course	2 6 0-3
	Summer session Faculty Package: ENGG2602	1
	1 st term Major Required: MAEG3010, MAEG3050/ESTR3406 Major Elective(s): 0 or 1 Breadth Elective course	6 0-3
Third Year of Attendance	2 nd term Major Required: MAEG3020/ESTR3404 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
	1 st term Major Required: MAEG4998 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
Fourth Year of Attendance	2 nd term Major Required: MAEG4999 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
	Total (including Faculty Package):	75

**Mechanical and Automation Engineering
Applicable to students admitted in 2016-17**

Major Programme Requirement

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

	Units
1. Faculty Package: ENGG1100/ESTR1000, ENGG1110/ESTR1002, ENGG2601, 2602	9
2. Foundation Science Courses:	9
(a) PHYS1110	
(b) i) One course from the following[a]: CHEM1380, ENGG1310/ESTR1003	
OR	
ii) One course from the following[b]: CHEM1380, ENGG1310/ESTR1003, LSCI1001, 1003	
(c) i) One course from the following[a][c]: ENGG1310/ ESTR1003, LSCI1001, 1003	
OR	
ii) PHYS1003[b]	
3. Foundation Mathematics Courses: ENGG1410/ESTR1004, ENGG2420/ESTR2000, ENGG2430/ ESTR2002, MATH1510[d]	12
4. Required Courses:	
(a) ELEG2202#, MAEG2020/ESTR2400, MAEG2030/ESTR2402, MAEG3010, MAEG3020/ESTR3404, MAEG3030, MAEG3050/ ESTR3406	21
(b) Research Component Courses[e]: MAEG4998, 4999	6
5. Elective Courses (at least 12 units of courses at MAEG3000 and above level or ENGG5000 level, of which at most 3 units of course should be at MAEG3000 level and at least 9 units of courses at MAEG4000 and above level or ENGG5000 level):	18
(a) <u>Breadth Electives</u> (9 units chosen from the following courses): CSCI1020, 1040, 1050, CSCI2100#/ESTR2102, CSCI2120#, 2800#, 3170#, EEEN2020, EEEN3030/ESTR3402, ELEG2401#, 3101#, ENGG1820, ENGG2020/ESTR2104, MAEG1010, 2010, 3040, MAEG3060/ESTR3408, MAEG3070, 3080, 3920, MAEG5050/ENGG5404, MAEG5080, 5120, MGNT1010, 4090, SEEM2440#/ESTR2500 (or DSME1030), SEEM3450#	

ESTR3502, SEEM3490#, 3500#

- (b) Depth Electives (9 units chosen from the following courses):
EEEN4010/ESTR4400, EEEN4020/ESTR4402, EEEN4030/
ESTR4404, EEEN4050/ESTR4422, EEEN4060/ESTR4424,
MAEG4010/ESTR4408, MAEG4020/ESTR4410, MAEG4030/
ESTR4412, MAEG4040/ESTR4414, MAEG4050/ESTR4416,
MAEG4060, MAEG4070/ESTR4418, MAEG4080/ESTR4420,
MAEG5010/ENGG5402, MAEG5020/ENGG5403, MAEG5030,
5060, 5070, 5090, MAEG5100/ENGG5405, MAEG5110

Streams

Students may choose not to specialize in any stream or to specialize in one of the three streams and complete a minimum of 15 units of courses prescribed by the stream.

Design and Manufacturing

- (a) Required Courses:
CSCI1020, MAEG2010, 3040
- (b) Elective Courses:
EEEN3030/ESTR3402, MAEG3060/ESTR3408, MAEG3070,
3080, 3920, MAEG4010/ESTR4408, MAEG4020/ESTR4410,
MAEG4060, MAEG4070/ESTR4418, MAEG5030, MAEG5050/
ENGG5404, MAEG5100/ENGG5405, MAEG5120, SEEM3500

Mechatronics

- (a) Required Courses:
CSCI1020, MAEG4040/ESTR4414, MAEG4050/ESTR4416
- (b) Elective Courses:
EEEN3030/ESTR3402, ELEG2401, ENGG2020/ESTR2104,
MAEG3080, MAEG5050/ENGG5404, MAEG5080

Robotics and Automation

- (a) Required Courses:
CSCI1020, MAEG3060/ESTR3408, MAEG4050/ESTR4416
- (b) Elective Courses:
EEEN3030/ESTR3402, MAEG1010, MAEG4010/ESTR4408,
MAEG5010/ENGG5402, MAEG5020/ENGG5403, MAEG5050/
ENGG5404, MAEG5090, 5120

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^[f]

Elective Courses:

15 units of courses^[g]:

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

Explanatory Notes:

1. Students who have completed the courses ENGG1110/ESTR1002, ENGG2601 and 2602 (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/index.html>.
2. EEEN, ENER, ENGG and MAEG courses at 2000 and above level as well as those labeled as #, and their reciprocal ESTR courses will be included in the calculation of Major GPA for honours classification, excluding courses in Faculty Package, Foundation Science courses and Foundation Mathematics courses.
3. Students satisfying all the requirements of a stream (except the ELITE Stream, which will be officially recorded on the academic transcript) will be given a certifying letter upon request. Further information is available from the Department.
 - [a] For students who have attained Level 3 or above in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [b] For students without HKDSE Physics or who have attained Level 2 or below in HKDSE Physics or Combined Science with Physics component or equivalent.
 - [c] Courses used to fulfill item 2(b) requirement cannot be used to fulfill item 2(c) requirement.
 - [d]
 - i) Students (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) Engineering students (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, ENGG1410, will also be dropped.
 - [e] Students who have declared to specialize in the ELITE Stream will be required to complete 6 units of ESTR4998 and 4999 to substitute for MAEG4998 and 4999.
 - [f] 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.
 - [g] Students can use up to 9 units of courses which have been taken to fulfill the requirements of items 1 to 5 above (excluding item 4(b) Research Component Courses) to fulfill the elective requirements of the ELITE Stream. A full list of ESTR

	courses is available at the ELITE website.
[h]	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).
[i]	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: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1380/ENGG1310/ESTR1003/LSCI1001/1003/PHYS1003/1110, MATH1510 Major Elective(s):	3 6-9
	2 nd term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1380/ENGG1310/ESTR1003/LSCI1001/1003/PHYS1003/1110, ENGG1410/ESTR1004 Major Elective(s):	3 6-9
Second Year of Attendance	1 st term Major Required: ELEG2202, ENGG2420/ESTR2000, MAEG2020/ESTR2400 Major Elective(s):	9
	2 nd term Faculty Package: ENGG2601 Major Required: ENGG2430/ESTR2002, MAEG2030/ESTR2402 Major Elective(s): 0 or 1 Breadth Elective course	2 6 0-3
	Summer session Faculty Package: ENGG2602	1
	1 st term Major Required: MAEG3010, MAEG3050/ESTR3406 Major Elective(s): 0 or 1 Breadth Elective course	6 0-3
Third Year of Attendance	2 nd term Major Required: MAEG3020/ESTR3404, MAEG3030 Major Elective(s): 0 or 1 Breadth / Depth Elective course	6 0-3
	1 st term Major Required: MAEG4998 Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3 3-6
Fourth Year of Attendance	2 nd term Major Required: MAEG4999	3

Last update: Sept 22, 2016

	Major Elective(s): 1 to 2 Breadth / Depth Elective course(s)	3-6
	Total (including Faculty Package):	75