Data Language: English

Program Information

Academic Program: (334 new curriculum) B.Eng. in Systems Engineering and Engineering Management
Academic Year: 2017

Select Language: English

Study Scheme Learning Outcomes

Study Scheme

Systems Engineering and Engineering Management
Applicable to students admitted in 2017-18

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, ENGG1410/ESTR1004	9
2.	Foundation Science Courses: 3 courses from the following, in which at least 3 units must be a Physics course: Chemistry Courses: CHEM1280, 1380 Life Science Courses: LSCI1001, 1003 Physics Courses[a]: ENGG1310/ESTR1003, PHYS1003, 1110 Other Courses[b]: CSCI1120/ESTR1100, CSCI1130/ESTR1102, IERG2060, SEEM2440/ESTR2500, SEEM2460/ESTR2540	9
3.	Foundation Mathematics Courses: ENGG2440/ESTR2004, ENGG2450/ESTR2005, MATH1510[c]	9
4.	Required Courses:	
(a)	CSCI2040#, CSCI2100#/ESTR2102, SEEM2420, 2602, 3410, SEEM3440/ESTR3500, SEEM3450/ESTR3502, SEEM3460/ESTR3504, SEEM3550/ESTR3506	24
(b)	Research Component Courses[d]: SEEM4998, 4999	6
5.	Elective Courses: AIST3510#/SEEM3510, CSCI4140#, ENGG1820, FINA3010#, IERG4210#, MATH4210#, MKTG2010#, RMSC2001#, SEEM2520, 2550, 3430, 3470, 3490, 3500, SEEM3570/ESTR3508, SEEM3580, SEEM3590/ESTR3509, SEEM3630/ESTR3510, SEEM3680/4680/ESTR3512/4504, SEEM4480, 4540, 4570, SEEM4600/ESTR4500, SEEM4610/ ESTR4502, SEEM4630, 4670, SEEM4720/ESTR4506, SEEM4730/ESTR4508	18

Streams of Specialization
There are four streams: Business Information Systems, Financial Engineering, Logistics and Supply Chain Management, and Service Engineering and Management. Students choosing a stream should take at least six courses from the corresponding list for their chosen stream. Students who do not wish to specialize in any of the four streams should follow a study scheme devised with the advice of the academic advisers of the Department.

(a) Business Information Systems
Required Courses (6 units):
SEEM3430, 4540
Elective Courses (12 units):
AIST3510/SEEM3510, CSCI4140, SEEM3490, SEEM3680/4680/ESTR3512/4504, SEEM4480, 4570, 4630, 4670

(b) Financial Engineering
Required Courses (6 units):
SEEM2520, SEEM3570/ESTR3508
Elective Courses (12 units):
MATH4210, SEEM2550, 3470, 3580, SEEM3590/ESTR3509, SEEM4480, SEEM4720/ESTR4506, SEEM4730/ESTR4508

(c) Logistics and Supply Chain Management
Required Courses (6 units):
SEEM4600/ESTR4500, SEEM4610/ESTR4502
Elective Courses (12 units):
MKTG2010, SEEM2520, 3470, 3500, SEEM3630/ESTR3510, SEEM3680/4680/ESTR3512/4504, SEEM4480, 4630

(d) Service Engineering and Management
Required Courses (6 units):
SEEM3630/ESTR3510, SEEM4670
Elective Courses (12 units):
MKTG2010, SEEM3470, 3500, SEEM3570/ESTR3508, SEEM3680/4680/ESTR3512/4504, SEEM4480, SEEM4610/ESTR4502, SEEM4630

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. ENGG, ESTR and SEEM courses at 2000 and above level as well as those labeled as # 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. Full exemption from the qualifying examination will be granted by the Chartered Institute of Logistics and Transport in Hong Kong (CILTHK) to graduates with successful completion of courses MKTG2010, SEEM2520, SEEM4600/ESTR4500 and SEEM4610/ESTR4502 plus a final year project in transport/logistics.

[a] The compulsory Physics course shall be taken in accordance with students' academic backgrounds as follows:
   i) Students without HKDSE Physics or who have attained Level 2 or below in HKDSE Physics or Combined Science with Physics Component shall take PHYS1003 in advance.
   ii) Students who have attained Level 3 or above in HKDSE Physics or Combined Science with Physics component shall take either ENGG1310/ESTR1003 or PHYS1110.
   iii) Non-JUPAS students will be assigned to take either PHYS1003 or 1110 according to advice of the Engineering Physics Panel.
   iv) Mainland students with Gao Kao examination results will be assigned to take either ENGG1310/ESTR1003 or PHYS1110 according to advice of the Engineering Physics Panel.

[b] Students are recommended to take SEEM2440/ESTR2500 and SEEM2460/ESTR2540.

[c] 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, ENGG1410, will also be dropped.

[d] Students who have declared to specialize in the ELITE Stream will be required to complete 6 units of ESTR4998 and 4999 to substitute for SEEM4998 and 4999.

[e] 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.

[f] Students can use up to 9 units of courses which have been taken to fulfill the requirements of items 1 to 5 above to fulfill the elective requirements of the ELITE Stream. Item 4(b) Research Component Courses will not be included in these 9 units. A full list of ESTR courses is available at the ELITE website.

[g] 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).

[h] 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: ENGG1100/1110/ESTR1000/1002 Major Required: 2 or 3 Foundation Science / Mathematics courses Major Elective(s):	3 6-9
	2nd term Faculty Package: ENGG1100/1110/ESTR1000/1002, ENGG1410/ESTR1004 Major Required: 1 or 2 Foundation Science / Mathematics courses	6 3-6

	Major Elective(s):	
Second Year of Attendance	1st term Major Required: CSCI2040, ENGG2440/ESTR2004, SEEM2602 Major Elective(s):	6
	2nd term Major Required: CSCI2100/ESTR2102, ENGG2450/ ESTR2005, SEEM2420 Major Elective(s):	9
Third Year of Attendance	1st term Major Required: SEEM3410, SEEM3440/ESTR3500, SEEM3460/ESTR3504 Major Elective(s): 1 course	9 3
	2nd term Major Required: SEEM3550/ESTR3506 Major Elective(s): 1 course	3 3
Fourth Year of Attendance	1st term Major Required: SEEM4998 Major Elective(s): 2 courses	3 6
	2nd term Major Required: SEEM3450/ESTR3502, SEEM4999 Major Elective(s): 2 courses	6 6
	Total (including Faculty Package):	**75**

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

Students are required to complete a minimum of 54 units of courses as follows:

		Units
1.	Faculty Package: ENGG1110/ESTR1002, ENGG2601, 2602	6
2.	Foundation Mathematics Courses: ENGG2450/ESTR2005	3
3.	Required Courses:	
(a)	CSCI2100#/ESTR2102, SEEM2420, 3410, SEEM3440/ ESTR3500, SEEM3450/ESTR3502, SEEM3460/ESTR3504, SEEM3550/ESTR3506	21
(b)	Research Component Courses[a]: SEEM4998, 4999	6
4.	Elective Courses: AIST3510#/SEEM3510, CSCI4140#, ENGG1820, FINA3010#, IERG4210#, MATH4210#, MKTG2010#, RMSC2001#, SEEM2520, 2550, 3430, 3470, 3490, 3500, SEEM3570/ESTR3508, SEEM3580, SEEM3590/ESTR3509, SEEM3630/ESTR3510, SEEM3680/4680/ESTR3512/4504, SEEM4480, 4540, 4570, SEEM4600/ESTR4500, SEEM4610/ ESTR4502, SEEM4630, 4670, SEEM4720/ESTR4506, SEEM4730/ESTR4508	18

Streams of Specialization

There are four streams: Business Information Systems, Financial Engineering, Logistics and Supply Chain Management, and Service Engineering and Management. Students choosing a stream should take at least six courses from the corresponding list for their chosen stream. Students who do not wish to specialize in any of the four streams should follow a study scheme devised with the advice of the academic advisers of the Department.

(a) Business Information Systems
Required Courses (6 units):
SEEM3430, 4540
Elective Courses (12 units):
AIST3510/SEEM3510, CSCI4140, SEEM3490, SEEM3680/4680/ESTR3512/4504, SEEM4480, 4570, 4630, 4670

(b) Financial Engineering
Required Courses (6 units):
SEEM2520, SEEM3570/ESTR3508
Elective Courses (12 units):
MATH4210, SEEM2550, 3470, 3580, SEEM3590/ESTR3509, SEEM4480, SEEM4720/ESTR4506, SEEM4730/ESTR4508

(c) Logistics and Supply Chain Management
Required Courses (6 units):
SEEM4600/ESTR4500, SEEM4610/ESTR4502
Elective Courses (12 units):
MKTG2010, SEEM2520, 3470, 3500, SEEM3630/ESTR3510, SEEM3680/4680/ESTR3512/4504, SEEM4480, 4630

(d) Service Engineering and Management
Required Courses (6 units):
SEEM3630/ESTR3510, SEEM4670
Elective Courses (12 units):
MKTG2010, SEEM3470, 3500, SEEM3570/ESTR3508, SEEM3680/4680/ESTR3512/4504, SEEM4480, SEEM4610/ ESTR4502, SEEM4630

Total: 54

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[b]
Elective Courses:
15 units of courses[c]:

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

Explanatory Notes:

1. ENGG, ESTR and SEEM courses at 2000 and above level as well as those labeled as # will be included in the calculation of Major GPA for honours classification, excluding courses in Faculty Package, Foundation Science courses and Foundation Mathematics courses.
2. Full exemption from the qualifying examination will be granted by the Chartered Institute of Logistics and Transport in Hong Kong (CILTHK) to graduates with successful completion of courses MKTG2010, SEEM2520, SEEM4600/ESTR4500 and SEEM4610/ESTR4502 plus a final year project in transport/logistics.

[a] Students who have declared to specialize in the ELITE Stream will be required to complete 6 units of ESTR4998 and 4999 to substitute for SEEM4998 and 4999.
[b] 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.
[c] 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.
[d] 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).
[e] 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: ENGG1110/ESTR1002 Major Required: CSCI2100/ESTR2102, SEEM3410/3440/ ESTR3500 Major Elective(s):	 3 6
	2nd term Faculty Package: ENGG2601, 2602 Major Required: ENGG2450/ESTR2005, SEEM2420, SEEM3550/ESTR3506 Major Elective(s): 1 course	 3 9 3
Second Year of Attendance	1st term Major Required: SEEM3410/3440/ESTR3500, SEEM3460/ESTR3504, SEEM4998 Major Elective(s): 2 courses	 9 6
	2nd term Major Required: SEEM3450/ESTR3502, SEEM4999 Major Elective(s): 3 courses	 6 9
	Total (including Faculty Package):	**54**

Bachelor of Engineering (Systems Engineering and Engineering Management) and Bachelor of Business Administration (Integrated BBA Programme) Double Degree Option

1st Degree: Bachelor of Engineering (Systems Engineering and Engineering Management)

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, ENGG1410/ ESTR1004	9
2.	Foundation Science Courses: 3 courses from the following, in which at least 3 units must be a Physics course: Chemistry Courses: CHEM1280, 1380 Life Science Courses: LSCI1001, 1003 Physics Courses[a]: ENGG1310/ESTR1003, PHYS1003, 1110	9

1st Degree: Bachelor of Engineering (Systems Engineering and Engineering Management)

Major Programme Requirement

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

		Units
	Other Courses[b]: CSCI1120/ESTR1100, CSCI1130/ESTR1102, IERG2060, SEEM2440/ESTR2500, SEEM2460/ESTR2540	
3.	Foundation Mathematics Courses: ENGG2440/ESTR2004, ENGG2450/ESTR2005, MATH1510[c]	9
4.	Required Courses:	
(a)	CSCI2040#, CSCI2100#/ESTR2102, SEEM2420, 2602, 3410, SEEM3440/ESTR3500, SEEM3450/ESTR3502, SEEM3460/ ESTR3504, SEEM3550/ESTR3506	24
(b)	Research Component Courses[d]: SEEM4998, 4999	6
5.	Elective Courses: AIST3510#/SEEM3510, CSCI4140#, ENGG1820, FINA3010#, IERG4210#, MATH4210#, MKTG2010#, RMSC2001#, SEEM2520, 2550, 3430, 3470, 3490, 3500, SEEM3570/ESTR3508, SEEM3580, SEEM3590/ESTR3509, SEEM3630/ESTR3510, SEEM3680/4680/ ESTR3512/4504, SEEM4480, 4540, 4570, SEEM4600/ESTR4500, SEEM4610/ESTR4502, SEEM4630, 4670, SEEM4720/ESTR4506, SEEM4730/ESTR4508	18

Streams of Specialization

There are four streams: Business Information Systems, Financial Engineering, Logistics and Supply Chain Management, and Service Engineering and Management. Students choosing a stream should take at least six courses from the corresponding list for their chosen stream. Students who do not wish to specialize in any of the four streams should follow a study scheme devised with the advice of the academic advisers of the Department.

(a) Business Information Systems
Required Courses (6 units):
SEEM3430, 4540
Elective Courses (12 units):
AIST3510/SEEM3510, CSCI4140, SEEM3490, SEEM3680/4680/ ESTR3512/4504, SEEM4480, 4570, 4630, 4670

(b) Financial Engineering
Required Courses (6 units):
SEEM2520, SEEM3570/ESTR3508
Elective Courses (12 units):
MATH4210, SEEM2550, 3470, 3580, SEEM3590/ESTR3509, SEEM4480, SEEM4720/ESTR4506, SEEM4730/ESTR4508

(c) Logistics and Supply Chain Management
Required Courses (6 units):
SEEM4600/ESTR4500, SEEM4610/ESTR4502
Elective Courses (12 units):
MKTG2010, SEEM2520, 3470, 3500, SEEM3630/ESTR3510, SEEM3680/4680/ESTR3512/4504, SEEM4480, 4630

(d) Service Engineering and Management
Required Courses (6 units):
SEEM3630/ESTR3510, SEEM4670
Elective Courses (12 units):
MKTG2010, SEEM3470, 3500, SEEM3570/ESTR3508, SEEM3680/ 4680/ESTR3512/4504, SEEM4480, SEEM4610/ESTR4502, SEEM4630

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.

1st Degree: Bachelor of Engineering (Systems Engineering and Engineering Management)

Major Programme Requirement

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

Units

ENGG, ESTR and SEEM courses at 2000 and above level as well as those labeled as # 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. Full exemption from the qualifying examination will be granted by the Chartered Institute of Logistics and Transport in Hong Kong (CILTHK) to graduates of the first degree with successful completion of courses MKTG2010, SEEM2520, SEEM4600/ESTR4500 and SEEM4610/ESTR4502 plus a final year project in transport/logistics.
4. Students are advised to take some courses of the University Core Requirements or Major courses in summer sessions to reduce their course load in regular terms.

[a] The compulsory Physics course shall be taken in accordance with students' academic backgrounds as follows:
   i) Students without HKDSE Physics or who have attained Level 2 or below in HKDSE Physics or Combined Science with Physics Component shall take PHYS1003 in advance.
   ii) Students who have attained Level 3 or above in HKDSE Physics or Combined Science with Physics component shall take either ENGG1310/ESTR1003 or PHYS1110.
   iii) Non-JUPAS students will be assigned to take either PHYS1003 or 1110 according to advice of the Engineering Physics Panel.
   iv) Mainland students with Gao Kao examination results will be assigned to take either ENGG1310/ESTR1003 or PHYS1110 according to advice of the Engineering Physics Panel.

[b] Students are recommended to take SEEM2440/ESTR2500 and SEEM2460/ESTR2540.

[c] 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, ENGG1410, will also be dropped.

[d] Students who have declared to specialize in the ELITE Stream will be required to complete 6 units of ESTR4998 and 4999 to substitute for SEEM4998 and 4999.

[e] 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.

[f] Students can use up to 9 units of courses which have been taken to fulfill the requirements of items 1 to 5 above to fulfill the elective requirements of the ELITE Stream. Item 4(b) Research Component Courses will not be included in these 9 units. A full list of ESTR courses is available at the ELITE website.

[g] 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).

[h] 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.

Requirements for admission to the 2nd degree programme

1. Admission to the second degree programme is guaranteed if students have:

   i. fulfilled all graduation requirements of the first degree programme;
   ii. Major GPA of at least 3.0 upon completion of studies of the first degree programme (ERG); and
   iii. taken at least 30 relevant units, of which includes ELTU2014, ELTU3014 and mutually recognized courses by both the Engineering and Business Administration Faculties. In addition, students should have achieved a GPA of at least 3.0 in these courses while pursuing the first degree programme. For details of the mutually recognized courses, please refer to the explanatory notes on mutual recognition or exclusion.

   Students who do not satisfy the above requirements may still apply for admission to the second degree programme which has discretion to judge the suitability of the students for studying for the second degree programme through assessments like conducting interview, considering the recommendation from the first degree programme etc.

Upon fulfillment of the requirements of the first degree programme, students can still choose to or not to pursue the second degree programme. If a student decides not to pursue the second degree programme but has fulfilled the requirements of a relevant BBA minor programme, a minor of that BBA programme would be awarded.

2nd Degree: Bachelor of Business Administration (Integrated BBA Programme)

Major Programme Requirement

Students are required to complete a minimum of 55 units of courses as follows:

		Units
1.	Faculty Package: DSME1030, 1040, MGNT1020	9
2.	Required Courses: ACCT2111, 2121, DSME2011, 2030, 2051, FINA2010, MGNT2510, 2610, 4010, MKTG2010	31
3.	Elective Courses (Concentration): Students must choose at least one concentration and take five or six courses among the courses prescribed under respective concentration area as follows:	15-18
(a)	Business Economics (i) DSME2021, 4110; (ii) two courses selected from: DSME3030, 3050, 3080, 3090, 4040, 4080; and (iii) one DSME course at 3000 or above level, excluding the courses taken for fulfillment of requirement (i) or (ii)	
(b)	Business Analytics (i) DSME2021, 2040, 4020; (ii) one course selected from: DSME4070, 4240, 4260; and (iii) one course selected from: DSME3030, 4030, 4110, 4220, 4280, MKTG4120	
(c)	General Finance (i) DSME2021 or FINA2020; (ii) 12 units of FINA courses at 3000 or above level, excluding the courses taken for fulfillment of requirement (iii), with no more than three 1-unit FINA courses; and (iii) one course from FINA3070, 3080, 4040, 4130, 4140, 4390	
(d)	Financial Engineering (i) DSME2021 or FINA2020; (ii) four courses selected from: FINA3080, 3220, 4110, 4120, 4150, 4160, 4190, 4210, 4220, 4250, 4260, 4370, 4380; and (iii) one course from FINA4040, 4130, 4140, 4390	
(e)	Insurance and Risk Management (i) DSME2021 or FINA2020, and FINA3210; (ii) three courses selected from: FINA2210, 3080, 3230, 3240, 3280, 4230, 4240; and (iii) one course from FINA4040, 4130, 4140, 4270, 4291, 4390	
(f)	Management of International Business (i) MGNT3580, 4150, MKTG3010; and (ii) Three courses selected from: MGNT3010, 3080, 4080, 4090, 4130, 4140, 4510, 4530, 4540, 4550, 4570, 4600, 4620	
(g)	Human Resource Management (i) MGNT2040, 3010, MKTG3010; and (ii) three courses selected from: MGNT3040, 3060, 3090, 4050, 4060, 4080, 4110, 4130, 4140, 4620	
(h)	Marketing (i) MKTG3010, 3020, 3030, 4040; and (ii) two courses selected from: MKTG3040, 3050, 3060, 4010, 4020, 4030, 4050, 4070, 4080, 4090, 4100, 4110, 4160	
(i)	Quantitative Marketing (i) MKTG3010, 4080, 4090, 4120; and (ii) two courses selected from: MKTG3020, 3030, 3060, 4030, 4040, 4070, 4130, 4150, 4160, 4170, 4180, 4190	
(j)	General Business (i) DSME2021/FINA2020/MKTG3010; and (ii) 12 units of DSME/FINA/MGNT/MKTG courses at 3000 or above level, excluding the courses taken for fulfillment of requirement (i), with no more than three 1-unit FINA courses	
	Total:	**55-58**

Explanatory Notes:

1. ACCT/DSME/FINA/IBBA/MGNT/MKTG courses at 2000 and above level (excluding ACCT2111 and 2121) will be included in the calculation of Major GPA for honours classification.
2. Double concentrations (i) among the finance-related concentration areas (i.e. any combination of General Finance, Financial Engineering, Insurance and Risk Management), and (ii) in Marketing and Quantitative Marketing are not allowed.
3. DSME2021 and the associated units can be used to satisfy concentration requirements of double concentrations within (a) to (e) and (j), except for the impermissible combination of concentrations as stipulated in Note 2 above.
   MKTG3010 and the associated units can be used to satisfy concentration requirements of double concentrations within (f) to (j), except for the impermissible combination of concentrations as stipulated in Note 2 above.

FINA2020 and the associated units can be used to satisfy concentration requirements of double concentrations within (c) to (e) and (j), except for the impermissible combination of concentrations as stipulated in Note 2 above.
MGNT3010 and the associated units can be used to satisfy concentration requirements of double concentrations within (f) and (g).

Explanatory Notes on Mutual Recognition or Exclusion:

1. DSME2011 and the associated units can be exempted from the requirement of the second degree by successfully completing ENGG2450/ESTR2005.
2. DSME2051 and the associated units can be exempted from the requirement of the second degree by successfully completing SEEM3490.
3. DSME4120 and the associated units can be exempted from the requirement of the second degree by successfully completing SEEM3430.
4. FINA3010 and the associated units can be used to satisfy both the requirements of the first and second degrees.
5. MKTG2010 and the associated units can be used to satisfy both the requirements of the first and second degrees.

Recommended Course Pattern

	1st degree: Bachelor of Engineering (Systems Engineering and Engineering Management)	Units	**2nd degree: Bachelor of Business Administration (Integrated BBA Programme)**	Units
First Year of Attendance	1st term Faculty Package: ENGG1100/ 1110/ESTR1000/1002 Major Required: 2 or 3 Foundation Science/ Mathematics courses Major Elective(s):	3 6-9	1st term Faculty Package: Major Required: Major Elective(s):	
	2nd term Faculty Package: ENGG1100/ 1110/ESTR1000/1002, ENGG1410/ESTR1004 Major Required: 1 or 2 Foundation Science/ Mathematics courses Major Elective(s):	6 3-6	2nd term Faculty Package: Major Required: Major Elective(s):	
Second Year of Attendance	1st term Major Required: CSCI2040, ENGG2440/ESTR2004, SEEM2602 Major Elective(s):	6	1st term Faculty Package: DSME1030 Major Required: Major Elective(s):	3
	2nd term Major Required: CSCI2100/ ESTR2102, ENGG2450/ ESTR2005, SEEM2420 Major Elective(s):	9	2nd term Faculty Package: DSME1040, MGNT1020 Major Required: Major Elective(s):	6
Third Year of Attendance	1st term Major Required: SEEM3410, SEEM3440/ESTR3500, SEEM3460/ESTR3504 Major Elective(s): 1 course	9 3	1st term Major Required: Major Elective(s):	
	2nd term Major Required: SEEM3550/ ESTR3506 Major Elective(s): 1 course	3 3	2nd term Major Required: FINA2010, DSME2011 Major Elective(s):	7
Fourth Year of Attendance	1st term Major Required: SEEM4998 Major Elective(s): 2 courses	3 6	1st term Major Required: ACCT2111, MGNT2510 Major Elective(s):	6
	2nd term Major Required: SEEM3450/ ESTR3502, SEEM4999 Major Elective(s): 2 courses	6 6	2nd term Major Required: ACCT2121, MKTG2010 Major Elective(s): 1 course	6 3
Fifth Year of Attendance			1st term Major Required: MGNT2610, DSME2030, 2051 Major Elective(s): 2 courses	9 6
			2nd term Major Required: MGNT4010 Major Elective(s): 2-3 courses	3 6-9
	Total (including Faculty Package):	**75**	**Total (including Faculty Package):**	**55-58**

Minor Programme Title
Engineering Management

Minor Programme Requirement

Students are required to complete a minimum of 18 units of courses, with at least 6 units at 3000 or above level, as follows:

		Units
1.	Required Courses: SEEM2420, SEEM3450/ESTR3502	6
2.	Elective Courses: ENGG2450/ESTR2005, MKTG2010, 3010, SEEM2520, 3410, SEEM3440/ESTR3500, SEEM3470, 3490, 3500, SEEM3570/ESTR3508, SEEM3630/ESTR3510, SEEM3680/4680/ESTR3512/4504, SEEM4480, SEEM4600/ESTR4500, SEEM4610/ESTR4502, SEEM4630	12
	Total:	**18**

Explanatory Note:

1. This Minor Programme is not applicable to students who major in Systems Engineering and Engineering Management and students with the Double Degree options in Systems Engineering and Engineering Management/Integrated BBA or Integrated BBA/Systems Engineering and Engineering Management.

Minor Programme Title
Financial Engineering

Minor Programme Requirement

Students are required to complete a minimum of 18 units of courses, with at least 6 units at 3000 level or above, as follows:

		Units
1.	Required Courses: SEEM2520, SEEM3570/ESTR3508	6
2.	Elective Courses: ECON3410, 3420, ENGG2450/ESTR2005, FINA2010, 3010, 3030, MATH4210, RMSC2001, SEEM2420, 3410, SEEM3440/ESTR3500, SEEM3470, 3580, SEEM3590/ESTR3509, SEEM4480, SEEM4720/ESTR4506, SEEM4730/ESTR4508	12
	Total:	**18**

Explanatory Note:

1. This Minor Programme is not applicable to students who major in Systems Engineering and Engineering Management and students with the Double Degree options in Systems Engineering and Engineering Management/Integrated BBA or Integrated BBA/Systems Engineering and Engineering Management.

Course List

Course Code	*Course Title*	*Unit(s)*
ENGG1310	Engineering Physics: Electromagnetics, Optics and Modern Physics	3
ENGG1820	Engineering Internship	1
ENGG2440	Discrete Mathematics for Engineers	3
ENGG2450	Probability and Statistics for Engineers	3
ESTR1003	Engineering Physics: Electromagnetics, Optics and Modern Physics	3
ESTR2004	Discrete Mathematics for Engineers	3
ESTR2005	Probability and Statistics for Engineers	3
ESTR2500	Engineering Economics	3
ESTR2540	Introduction to Data Science	3
ESTR3500	Operations Research II	3
ESTR3502	Engineering Innovation and Entrepreneurship	3
ESTR3504	Computer Processing Concepts	3
ESTR3506	Fundamentals in Information Systems	3
ESTR3508	Stochastic Models	3
ESTR3509	Investment Science	3
ESTR3510	Service Management	3
ESTR3512	Technology, Consulting and Analytics in Practice	3
ESTR4500	Logistics Management	3
ESTR4502	Supply Chain Management	3
ESTR4504	Technology, Consulting and Analytics in Practice	3
ESTR4506	Computational Finance	3
ESTR4508	Statistics Modeling and Analysis in Financial Engineering	3
SEEM2420	Operations Research I	3
SEEM2440	Engineering Economics	3
SEEM2460	Introduction to Data Science	3
SEEM2520	Fundamentals in Financial Engineering	3
SEEM2550	Differential Equations	3
SEEM2602	Systems Engineering Practicum	1
SEEM3410	System Simulation	3
SEEM3430	Information Systems Analysis and Design	3
SEEM3440	Operations Research II	3
SEEM3450	Engineering Innovation and Entrepreneurship	3

SEEM3460	Computer Processing Concepts	3
SEEM3470	Dynamic Optimization and Applications	3
SEEM3490	Information Systems Management	3
SEEM3500	Quality Control and Management	3
SEEM3510	Human and Computer Interaction	3
SEEM3550	Fundamentals in Information Systems	3
SEEM3570	Stochastic Models	3
SEEM3580	Risk Analysis for Financial Engineering	3
SEEM3590	Investment Science	3
SEEM3630	Service Management	3
SEEM3680	Technology, Consulting and Analytics in Practice	3
SEEM4480	Decision Methodology and Applications	3
SEEM4540	Open Systems for E-Commerce	3
SEEM4570	System Design and Implementation	3
SEEM4600	Logistics Management	3
SEEM4610	Supply Chain Management	3
SEEM4630	E-Commerce Data Mining	3
SEEM4670	Service Systems	3
SEEM4680	Technology, Consulting and Analytics in Practice	3
SEEM4720	Computational Finance	3
SEEM4730	Statistics Modeling and Analysis in Financial Engineering	3
SEEM4998	Final Year Project I	3
SEEM4999	Final Year Project II	3

Study Scheme Learning Outcomes

Learning Outcomes

1. Major Programme:

Through the course of their studies, SEEM students will have developed:

(1) The ability to apply knowledge of mathematics, science, and engineering appropriate to the degree discipline (K/S)
(2) The ability to design and conduct experiments, as well as to analyze and interpret data (K/S)
(3) The ability to design a system, component, or process to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability (K/S)
(4) The ability to function in multi-disciplinary teams (S/V)
(5) The ability to identify, formulate, and solve engineering problems (K/S)
(6) The understanding of professional and ethical responsibility (V)
(7) The ability to communicate effectively (S)
(8) The ability to understand the impact of engineering solutions in a global and societal context, especially the importance of health, safety and environmental considerations to both workers and the general public (V)
(9) The ability to stay abreast of contemporary issues (S/V)
(10) The ability to recognize the need for, and to engage in life-long learning (V)
(11) The ability to use the techniques, skills, and modern engineering tools necessary for engineering practice appropriate to the degree discipline (K/S)
(12) The ability to use the computer/IT tools relevant to the discipline along with an understanding of their processes and limitations (K/S/V)
(13) The ability to apply the skills relevant to the discipline of operations research and information technology and their applications in engineering and managerial decision making, especially in financial services, logistics and supply chain management, business information systems, and service engineering and management (K/S)

K = Knowledge outcomes S =Skills outcomes V = Values and attitude outcomes

2. Minor Programmes:

(i) Engineering Management

Upon completion of the Minor programme, students will have

(1) an understanding of the role of engineering management in manufacturing and service organizations
(2) the knowledge of how the engineering functions are integrated with other functional areas such as manufacturing, market research, etc.
(3) the ability to conduct assessment of new projects and ventures
(4) the ability to apply techniques and skills for managing projects

(ii) Financial Engineering

Upon completion of the Minor programme, students will have

(1) an understanding of financial instruments: their features, properties, design, pricing, and risk
(2) the ability to make use of mathematical models to design and price these financial instruments and to assess their risk
(3) the ability to make use of information technologies to support the analysis, marketing and trading of these financial instruments

Course Information

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