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: 12
    ENGG1410/ESTR1004, ENGG2420/ESTR2000, ENGG2430/ESTR2002, MATH1510

4.   Required Courses:
(a)   CSCI2100/ESTR2102, ELEG3230, ENGG2310/ESTR2300,   22
    IERG2051/ESTR2302, IERG3080, 3310, 3810, 3820, 3921
(b)   Research Component Courses[c]:   6
    IERG4998, 4999

5.   Elective Courses: 17
Out of the 17 Elective Course units, at least 12 units should be from the following courses:
CSCI3150/ESTR3102, ENGG1820, ENGG4030/ESTR4300, IERG2060, IERG3010/ESTR3300, IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG3320/ESTR3306, IERG3830, IERG4020/ESTR4318, IERG4030, IERG4080/ESTR4312, IERG4090/ESTR4302, IERG4100/ESTR4304, IERG4110/ESTR4314, IERG4130/ESTR4306, IERG4160, IERG4180/ESTR4308, IERG4190, 4210, 4220, 4230, IERG4330/ESTR4316, IERG4831, 4841, IERG5040/ENGG5392, IERG5090, IERG5100/ENGG5303, IERG5140, IERG5154/ENGG5301, IERG5200, IERG5240/ENGG5383, IERG5270, 5280, 5290, IERG5300/ENGG5302, IERG5310, 5320, 5330

The remaining units, if any, can be fulfilled by any BMEG/CENG/CSCI/ELEG/ENER/ENGG/ESTR/MAEG/SEEM course(s) at 3000 and above level.

Streams
Students may choose not to specialize in any stream or to specialize in one or more of the five streams and complete a minimum of 12 units of

courses prescribed by the stream.

Big Data: Systems and Applications
CSCI3320, 4180, 4190, ELEG5491, ENGG4030/ESTR4300 (required), IERG3320/ESTR3306, IERG4080/ESTR4312, IERG4160, 4230, IERG4330/ESTR4316

Communications
IERG3010/ESTR3300, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4020/ESTR4318, IERG4030, IERG4100/ESTR4304, IERG4110/ ESTR4314, IERG4130/ESTR4306, IERG4230, IERG5040/ENGG5392, IERG5100/ENGG5303, IERG5200, 5280, 5330

Cyber Security
CSCI3150/ESTR3102, IERG4130/ESTR4306 (required), IERG4210, 4220, IERG5240/ENGG5383, 5310, 5320

Internet Engineering
CSCI3150/ESTR3102 (required), IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4080/ESTR4312, IERG4090/ESTR4302, IERG4130/ESTR4306, IERG4180/ESTR4308, IERG4190, 4210, 4831, 4841, 5090, 5270, 5280

Enrichment
CSCI3160/ESTR3104, ENGG4030/ESTR4300, IERG3010/ESTR3300, IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4100/ ESTR4304, IERG4190, IERG5154/ENGG5301, IERG5200, 5270, 5290, IERG5300/ENGG5302

	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/ELEG/ENER/ENGG/ESTR/IERG/MAEG/SEEM courses at 3000 and above level 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. For details, please refer to the Department for information.

[a]	For students who have obtained Level 3 or above in HKDSE Physics or Combined Science with Physics component or equivalent.
[b]	For students who have obtained 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 IERG4998 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 3000or 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	1st term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/LSCI1001, MATH1510, PHYS1110 (or 1003) Major Elective(s):	3 6-9
	2nd term Faculty Package: ENGG1100/1110/ESTR1000/1002 Major Required: CHEM1070/1280/1380/LSCI1003, ENGG1410/ESTR1004, ENGG1310/2520/ESTR2006 (or PHYS1110) Major Elective(s):	3 6-9
Second Year of Attendance	1st term Major Required: CSCI2100/ESTR2102, ENGG2420/ ESTR2000, IERG2051/ESTR2302 Major Elective(s):	9
	2nd term Faculty Package: ENGG2600/ESTR2008 Major Required: ENGG2310/ESTR2300, ENGG2430/ ESTR2002, IERG3820 Major Elective(s):	3 7
Third Year of Attendance	1st term Major Required: IERG3080, 3310, 3921 Major Elective(s): 1 course	8 2-3
	2nd term Major Required: ELEG3230, IERG3810 Major Elective(s): 2 courses	4 6

Fourth Year of Attendance	1st term	
	Major Required: IERG4998	3
	Major Elective(s): 2 courses	6
	2nd term	
	Major Required: IERG4999	3
	Major Elective(s): 1 course	3
Total (including Faculty Package):		**75-76**

Title of Double Degree Programme/Option
Bachelor of Engineering (Information Engineering) and Bachelor of Business Administration (Integrated BBA Programme) Double Degree Option

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1st Degree: Bachelor of Engineering (Information Engineering)

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: 12
   ENGG1410/ESTR1004, ENGG2420/ESTR2000, ENGG2430/ESTR2002, MATH1510

4. Required Courses:
(a) CSCI2100/ESTR2102, ELEG3230, ENGG2310/ESTR2300,   22
   IERG2051/ESTR2302, IERG3080, 3310, 3810, 3820, 3921
(b) Research Component Courses[c]:   6
   IERG4998, 4999

5. Elective Courses: 17
   Out of the 17 Elective Course units, at least 12 units should be from the following courses:
   CSCI3150/ESTR3102, ENGG1820, ENGG4030/ESTR4300, IERG2060, IERG3010/ESTR3300, IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG3320/ESTR3306, IERG3830, IERG4020/ESTR4318, IERG4030, IERG4080/ESTR4312, IERG4090/ESTR4302, IERG4100/ESTR4304, IERG4110/ESTR4314, IERG4130/ESTR4306, IERG4160, IERG4180/ESTR4308, IERG4190, 4210, 4220, 4230, IERG4330/ESTR4316, IERG4831, 4841, IERG5040/ENGG5392, IERG5090,

IERG5100/ENGG5303, IERG5140, IERG5154/ENGG5301, IERG5200, IERG5240/ENGG5383, IERG5270, 5280, 5290, IERG5300/ENGG5302, IERG5310, 5320, 5330

The remaining units, if any, can be fulfilled by any BMEG/CENG/CSCI/ELEG/ENER/ENGG/ESTR/MAEG/SEEM course(s) at 3000 and above level.

Streams
Students may choose not to specialize in any stream or to specialize in one or more of the five streams and complete a minimum of 12 units of courses prescribed by the stream.

Big Data: Systems and Applications
CSCI3320, 4180, 4190, ELEG5491, ENGG4030/ESTR4300 (required), IERG3320/ESTR3306, IERG4080/ESTR4312, IERG4160, 4230, IERG4330/ESTR4316

Communications
IERG3010/ESTR3300, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4020/ESTR4318, IERG4030, IERG4100/ESTR4304, IERG4110/ESTR4314, IERG4130/ESTR4306, IERG4230, IERG5040/ENGG5392, IERG5100/ENGG5303, IERG5200, 5280, 5330

Cyber Security
CSCI3150/ESTR3102, IERG4130/ESTR4306 (required), IERG4210, 4220, IERG5240/ENGG5383, IERG5310, 5320

Internet Engineering
CSCI3150/ESTR3102 (required), IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4080/ESTR4312, IERG4090/ESTR4302, IERG4130/ESTR4306, IERG4180/ESTR4308, IERG4190, 4210, 4831, 4841, 5090, 5270, 5280

Enrichment
CSCI3160/ESTR3104, ENGG4030/ESTR4300, IERG3010/ESTR3300, IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4100/ESTR4304, IERG4190, IERG5154/ENGG5301, IERG5200, 5270, 5290, IERG5300/ENGG5302

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/ELEG/ENER/ENGG/ESTR/IERG/MAEG/SEEM courses at 3000 and above level 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. For details, please refer to the Department for information.

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] For students who have obtained Level 3 or above in HKDSE Physics or Combined Science with Physics component or equivalent.

[b] For students who have obtained 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 IERG4998 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 3000or 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.

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 a reasonable number of units (30 units as mutually agreed by both the Engineering and Business Administration Faculties) of courses prescribed by the second degree programme and have achieved a GPA of at least 3.0 in these courses while pursuing the first degree programme. These second degree programme courses include the required language courses and the mutually recognized courses of the double degree programme.

   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 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 of this double degree programme can 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 58 units of courses as follows:

		Units
1.	Faculty Package: DSME1030, 1040, MGNT1020	9
2.	Required Courses: ACCT2111, 2121, 3151, DSME2011, 2030, 2051, FINA2010, MGNT2510, 3010, 4010, MKTG2010	34
3.	Elective Courses (Concentration): Students must choose at least one concentration and take five courses among the courses prescribed under each concentration area as follows:	15

(a) Business Economics
DSME2021, one from any concentration area and three courses selected from: DSME3030, 3040, 3050, 3070, 3080, 3090, 4040, 4050, 4080, 4090, 4110

(b) Management Information Systems
DSME2021, and four courses selected from: DSME4020, 4030, 4070, 4120, 4140, 4160, 4180, 4200, 4220, 4230, 4240, 4280

(c) Supply Chain and Logistics Management
DSME2021, one from any concentration area and three courses selected from: DSME4020, 4070, 4170, 4180, 4190, 4240, 4260, 4270

(d) General Decision Sciences and Managerial Economics
DSME2021, one from any concentration area and three courses selected from: DSME3010, 3020, 3030, 3040, 3050, 3060, 3070, 3080, 3090, 4020, 4030, 4040, 4050, 4060, 4070, 4080, 4090, 4100, 4110, 4120, 4130, 4140, 4150, 4160, 4170, 4180, 4190, 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280

(e) General Finance
DSME2021, and 12 units of FINA courses at 3000 or above level, with no more than three 1-unit FINA courses

(f) Financial Engineering
DSME2021, and four courses selected from: FINA3220, 4110, 4120, 4130, 4140, 4150, 4160, 4190, 4210, 4220, 4250, 4260, 4370, 4380

(g) Insurance and Risk Management
DSME2021, FINA3210 and three courses selected from: FINA2210, 3080, 3230, 3240, 4230, 4240

(h) Management of International Business

MGNT3580, MKTG3010 and three courses selected from: MGNT4120, 4140, 4150, 4510, 4520, 4530, 4540, 4550, 4570, 4600, 4610, 4620, 4630

(i)   Human Resource Management
        MGNT2040, MKTG3010 and three courses selected from: MGNT3040, 3060, 4050, 4060, 4080, 4110, 4130, 4140, 4620, 4630

(j)   Marketing
        MKTG3010, 4040 and three courses selected from: MKTG3020, 3030, 3040, 3050, 4010, 4020, 4030, 4050, 4070, 4080, 4090, 4100, 4110

(k)   Quantitative Marketing
        MKTG3010, 4090, 4120 and two courses selected from: MKTG4030, 4070, 4080, 4130, 4150

(l)   General Business
        DSME2021/MKTG3010 and 12 units of DSME/FINA/MGNT/ MKTG courses at 3000 or above level, with no more than three 1-unit FINA courses

	Total:	**58**

Explanatory Notes:
1.   Students who have completed the course HTMG2010 will be eligible to apply for exemption of 3 units of University Core English Language Requirement (ELTU2012).
        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.
2.   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.
3.   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.
4.   DSME2021 and the associated units can be used to satisfy concentration requirements of double concentrations within (a) to (g) and (l), except for the impermissible combination of concentrations as stipulated in Note 3 above.
        MKTG3010 and the associated units can be used to satisfy concentration requirements of double concentrations within (h) to (l), except for the impermissible combination of concentrations as stipulated in Note 3 above.

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 ENGG2430/ESTR2002.
2.   DSME4140 and the associated units can be exempted from the requirement of the second degree by successfully completing IERG3310.

Recommended Course Pattern				
	1st degree: Bachelor of Engineering (Information Engineering)	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: CHEM1070/ 1280/1380/LSCI1001, MATH1510, PHYS1110 (or 1003) Major Elective(s):	3 6-9	1st term Faculty Package: Major Required: Major Elective(s):	
	2nd term Faculty Package: ENGG1100/ 1110/ESTR1000/1002 Major Required: CHEM1070/ 1280/1380/LSCI1003, ENGG1410/ESTR1004, ENGG1310/2520/ESTR2006 (or PHYS1110) Major Elective(s):	3 6-9	2nd term Faculty Package: Major Required: Major Elective(s):	
Second Year of Attendance	1st term Major Required: CSCI2100/ ESTR2102, ENGG2420/ ESTR2000, IERG2051/ ESTR2302 Major Elective(s):	9	1st term Faculty Package: DSME1030, MGNT1020 Major Required: Major Elective(s):	3-6
	2nd term Faculty Package: ENGG2600/ESTR2008 Major Required: ENGG2310/ ESTR2300, ENGG2430/ ESTR2002, IERG3820 Major Elective(s):	3 7	2nd term Faculty Package: DSME1040, MGNT1020 Major Required: Major Elective(s):	3-6
Third Year of Attendance	1st term Major Required: ELEG3230, IERG3810 Major Elective(s): 1 course	4 3	1st term Major Required: ACCT2111, DSME2011 Major Elective(s):	7
	2nd term Major Required: IERG3080, 3310, 3921 Major Elective(s): 1 course	8 2-3	2nd term Major Required: ACCT2121 Major Elective(s): 1 course	3 3
Fourth Year of Attendance	1st term Major Required: IERG4998 Major Elective(s): 2 courses	3 6	1st term Major Required: MKTG2010, FINA2010 Major Elective(s):	6
	2nd term		2nd term	

	Major Required: IERG4999 Major Elective(s): 2 courses	3 6	Major Required: DSME2030, 2051 Major Elective(s):	6
Fifth Year of Attendance			1st term Major Required: ACCT3151, MGNT2510, 3010, 4010 Major Elective(s):	12
			2nd term Major Required: Major Elective(s): 4 courses	12
	Total (including Faculty Package):	**75-76**	**Total (including Faculty Package):**	**58**

Minor Programme Title
Information Engineering

Minor Programme Requirement

Students are required to complete a minimum of 18 units of courses as follows:
 	
                                                                         Units
1.   Required Courses: 6
       CSCI2100/ESTR2102, IERG3310
 	
2.   Elective Courses: 12
       CSCI3150/ESTR3102, ENGG4030/ESTR4300, IERG3010/ ESTR3300, IERG3050, IERG3280/ESTR3302, IERG3300/ ESTR3304, IERG3320/ESTR3306, IERG4020/ESTR4318, IERG4030, IERG4080/ESTR4312, IERG4090/ESTR4302, IERG4100/ESTR4304, IERG4110/ESTR4314, IERG4130/ ESTR4306, IERG4160, IERG4180/ESTR4308, IERG4190, 4210, 4220, 4230, IERG4330/ESTR4316, IERG5040/ENGG5392, IERG5090, IERG5100/ENGG5303, IERG5140, IERG5154/ ENGG5301, IERG5200, IERG5240/ENGG5383, IERG5270, 5280, 5290, IERG5300/ENGG5302, IERG5310, 5320, 5330
 	
                                                        Total: **18**

Course List		
Course Code	*Course Title*	*Unit(s)*
ENGG1310	Engineering Physics: Electromagnetics, Optics and Modern Physics	3
ENGG1410	Linear Algebra and Vector Calculus for Engineers	3
ENGG1820	Engineering Internship	1
ENGG2310	Principles of Communication Systems	3
ENGG2420	Complex Analysis and Differential Equations for Engineers	3
ENGG2430	Probability and Statistics for Engineers	3
ENGG2520	Engineering Physics II	3
ENGG4030	Web-scale Information Analytics	3

ENGG5301	Information Theory	3
ENGG5302	Random Processes	3
ENGG5303	Advanced Wireless Communications	3
ENGG5383	Applied Cryptography	3
ENGG5392	Lightwave System Technologies	3
ESTR1004	Linear Algebra and Vector Calculus for Engineers	3
ESTR2000	Complex Analysis and Differential Equations for Engineers	3
ESTR2002	Probability and Statistics for Engineers	3
ESTR2006	Engineering Physics II	3
ESTR2300	Principles of Communication Systems	3
ESTR2302	Signals and Systems	3
ESTR3300	Digital Communications	3
ESTR3302	Networks: Technology, Economics, and Social Interactions	3
ESTR3304	Introduction to Stochastic Processes	3
ESTR3306	Social Media and Human Information Interaction	3
ESTR4300	Web-scale Information Analytics	3
ESTR4302	Networking Protocols and Systems	3
ESTR4304	Wireless Communication Systems	3
ESTR4306	Introduction to Cyber Security	3
ESTR4308	Network Software Design and Programming	3
ESTR4312	Building Scalable Internet-based Services	3
ESTR4314	Hands-on Wireless Communication	3
ESTR4316	Programming Big Data Systems	3
ESTR4318	Telecommunication Switching and Network Systems	3
IERG2051	Signals and Systems	3
IERG2060	Basic Analog and Digital Circuits	3
IERG3010	Digital Communications	3
IERG3050	Simulation and Statistical Analysis	3
IERG3080	Information and Software Engineering Practice	3
IERG3280	Networks: Technology, Economics, and Social Interactions	3
IERG3300	Introduction to Stochastic Processes	3
IERG3310	Computer Networks	3
IERG3320	Social Media and Human Information Interaction	3
IERG3810	Microprocessor System Design Laboratory	1
IERG3820	Communications Laboratory	1
IERG3830	Product Design Project	3
IERG3921	Information Engineering Laboratory	2
IERG4020	Telecommunication Switching and Network Systems	3
IERG4030	Optical Communications	3
IERG4080	Building Scalable Internet-based Services	3
IERG4090	Networking Protocols and Systems	3
IERG4100	Wireless Communication Systems	3
IERG4110	Hands-on Wireless Communication	3
IERG4130	Introduction to Cyber Security	3
IERG4160	Image and Video Processing	3
IERG4180	Network Software Design and Programming	3
IERG4190	Multimedia Coding and Processing	3
IERG4210	Web Programming and Security	3
IERG4220	Secure Software Engineering	3
IERG4230	Introduction to Internet of Things	3
IERG4330	Programming Big Data Systems	3
IERG4831	Networking Laboratory I	2

IERG4841	Networking Laboratory II	2
IERG4998	Final Year Project I	3
IERG4999	Final Year Project II	3
IERG5040	Lightwave System Technologies	3
IERG5090	Advanced Networking Protocols and Systems	3
IERG5100	Advanced Wireless Communications	3
IERG5140	Lightwave Networks	3
IERG5154	Information Theory	3
IERG5200	Channel Coding and Modulation	3
IERG5240	Applied Cryptography	3
IERG5270	Advanced Topics in P2P Networks and Systems	3
IERG5280	Mobile Networking	3
IERG5290	Network Coding Theory	3
IERG5300	Random Processes	3
IERG5310	Security and Privacy in Cyber Systems	3
IERG5320	Digital Forensics	3
IERG5330	Network Economics	3