THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Suggested Study Plan for Senior Year Entry Students
(2017-18)

For students entering into senior year places, the minimum unit requirement is 69.

University core requirements:

English (9 units)	AD holders: Exempt 7 units. Students will be required to take a 2-unit Year 3 English course HD holders: Exempt 4 units. Students will be required to take Year 2 (3-unit) and Year 3 (2 unit) English courses
Chinese (6 units)	Exempt 6 units
UGE (15 units)	Exempt 9 units. Students will be required to take one 3-unit GE foundation course and one UGEA course
CGE (6 units)	Exempt 3-4 units, depending on college affiliation
IT (1 unit)	Exempt 1 unit
PE (2 units)	Exempt 1 unit

Total unit exemption: 27/28 for AD holders; 24/25 for HD holders

Major Programme Requirement

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

		Units
1.	Faculty Package: ENGG2601, 2602	3
2.	Foundation Mathematics Courses: ENGG1410/ESTR1004, ENGG2420/ESTR2000, ENGG2470/ESTR2012	9
3.	Required Courses:	
(a)	CSCI1140, CSCI2100/ESTR2102, ENGG2310/ESTR2300, IERG2051/ESTR2302, IERG3060, 3080, 3310, 3800, 3810, 3820	22
(b)	Research Component Courses[a]: IERG4998/ESTR4998, IERG4999/ESTR4999	6
4.	Elective Courses[b]: Out of 12 Elective Course units, at least 9 units should be from the following major courses: CSCI3150/ESTR3102, ENGG1820, ENGG4030/ESTR4300, IERG3010/ESTR3300, IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG3320/ESTR3306, IERG3830, IERG4030, IERG4080/ESTR4312, IERG4090/ESTR4302, IERG4100/ESTR4304, IERG4110/ ESTR4314, IERG4130/ESTR4306, IERG4160, IERG4180/ ESTR4308, IERG4190, 4210, 4220, 4230, IERG4330/ESTR4316, IERG4831, 4841, 5020, IERG5040/ENGG5392, IERG5090,	12

IERG5100/ ENGG5303, IERG5130, 5140, 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, IERG4030, IERG4100/ESTR4304, IERG4110/ ESTR4314, IERG4130/ESTR4306, IERG4230, 5020, 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:	52

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[c]
Elective Courses:
15 units of courses[d]:
i)   12 units of ESTR courses of which at most 6 units of courses at 1000 or 2000 level and at least 6 units of courses at 3000 or 4000 level
ii)   3 units of BMEG/CENG/CSCI/ELEG/ENGG/IERG/MAEG/SEEM courses at 5000 level

Explanatory Notes:
1.   BMEG/CENG/CSCI/ELEG/ENER/ENGG/ESTR/IERG/MAEG/SEEM required and major elective courses at 2000 and above level 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. Students satisfying all the requirements of a stream (except the ELITE Stream, which will be officially recorded in the academic transcript) will be given a certifying letter upon request. For details, please refer to the Department for information.

[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 IERG4998 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 (excluding item 3(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.

[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.

Suggested study plan:

First Year

1st semester

2nd semester

Code	Course			Code		Course	
ENGG2420 / ESTR2000	Complex Analysis and Differential Equations for Engineers	3		**ENGG1410 / ESTR1004**		Linear Algebra and Vector Calculus for Engineers	3
CSCI1140	Programming Laboratory	1		**ENGG2470 / ESTR2012**		Probability for Engineers	3
CSCI2100 / ESTR2102	Data Structures	3		**ENGG2601**		Technology, Society and Engineering Practice	2
UGFH1000 /UGFN1000	University General Education Foundation Course	3		**ENGG2602**		Engineering Practicum	1
	Physical Education	1		**IERG3310**		Computer Networks	3
	University (UGEA) or College General Education Course	2-3		**IERG2051 / ESTR2302**		Signals and Systems	3
	Free Elective	3					
				HD holders	**ELTU2014**	English for Engineering I	3
				AD holders	**-**	Free elective	
		16-17					**18**

Second Year

3rd semester

Code	Course			Code	Course	
IERG4998 / ESTR4998	Final Year Project I	3		**IERG4999 ESTR4999**	Final Year Project II	3
IERG3080	Information and Software Engineering Practice	3		**IERG3060**	Microcontrollers and Embedded Systems	3
IERG3800*	Information Infrastructure Design Lab	1		**IERG3810**	Microcontrollers and Embedded Systems Laboratory	1
ENGG2310 / ESTR2300	Principles of Communication Systems	3			Major Elective	3
IERG3820	Communications Lab	1			Major Elective	3
	Major Elective	3			Major Elective	3
	University (UGEA) or College General Education Course	2-3		**ELTU3014**	English for Engineering II	2
		16-17				**18**

4th semester appears above the second Code/Course header.

* IERG3800 can also be taken in the summer term of the first year of study.

	Number of Units	
Major Required Courses	**40**	
Major Electives	**12**	
College General Education Courses	2/3	Depending on the affiliating college
University General Education Courses	6	(one general education foundation course and one UGEA course)
English Language Courses	5	
Physical Education Course	1	
Free Electives	3	
Total	**69/70**	

Last update: July 2017

Course List

Course Code	Course Title	Unit(s)
CHEM1380	Basic Chemistry for Engineers	3
CSCI1120/ESTR1100	Introduction to Computing Using C++	3
CSCI1130/ESTR1102	Introduction to Computing Using Java	3
CSCI1140	Programming Laboratory	1
CSCI2100/ESTR2102	Data Structures	3
CSCI3150/ESTR3102	Introduction to Operating Systems	3
CSCI3160/ESTR3104	Design and Analysis of Algorithms	3
CSCI3320	Fundamentals of Machine Learning	3
CSCI4180	Introduction to Cloud Computing and Storage	3
CSCI4190	Introduction to Social Networks	3
ELEG5491	Introduction to Deep Learning	3
ELTU2014	English for Engineering I	3
ELTU3014	English for Engineering II	2
ENGG1100/ESTR1000	Introduction to Engineering Design	3
ENGG1110/ESTR1002	Problem Solving by Programming	3
ENGG1310/ESTR1003	Engineering Physics: Electromagnetics, Optics and Modern Physics	3
ENGG1410/ESTR1004	Linear Algebra and Vector Calculus for Engineers	3
ENGG1820	Engineering Internship	1
ENGG2310/ESTR2300	Principles of Communication Systems	3
ENGG2420/ESTR2000	Complex Analysis and Differential Equations for Engineers	3
ENGG2470/ESTR2012	Probability for Engineers	3
ENGG2601	Technology, Society and Engineering Practice	2
ENGG2602	Engineering Practicum	1
ENGG4030/ESTR4300	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
IERG1810	Electronic Circuit Design Laboratory	1
IERG2051/ESTR2302	Signals and Systems	3
IERG2060	Basic Analog and Digital Circuits	3
IERG2080	Introduction to Systems Programming	2
IERG2602	Engineering Practicum	1
IERG3010/ESTR3300	Digital Communications	3
IERG3050	Simulation and Statistical Analysis	3
IERG3060	Microcontrollers and Embedded Systems	3
IERG3080	Information and Software Engineering Practice	3
IERG3280/ESTR3302	Networks: Technology, Economics, and Social Interactions	3
IERG3300/ESTR3304	Introduction to Stochastic Processes	3
IERG3310	Computer Networks	3
IERG3320/ESTR3306	Social Media and Human Information Interaction	3
IERG3800	Information Infrastructure Design Lab	1
IERG3810	Microcontrollers and Embedded System Laboratory	1
IERG3820	Communications Laboratory	1

Course Code	Course Title	Unit(s)
IERG3830	Product Design Project	3
IERG4030	Optical Communications	3
IERG4080/ESTR4312	Building Scalable Internet-based Services	3
IERG4090/ESTR4302	Networking Protocols and Systems	3
IERG4100/ESTR4304	Wireless Communication Systems	3
IERG4110/ESTR4314	Hands-on Wireless Communication	3
IERG4130/ESTR4306	Introduction to Cyber Security	3
IERG4160	Image and Video Processing	3
IERG4180/ESTR4308	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/ESTR4316	Programming Big Data Systems	3
IERG4831	Networking Laboratory I	2
IERG4841	Networking Laboratory II	2
IERG4998/ESTR4998	Final Year Project I	3
IERG4999/ESTR4999	Final Year Project II	3
IERG5020	Telecommunication Switching and Network Systems	3
IERG5040	Lightwave System Technologies	3
IERG5090	Advanced Networking Protocols and Systems	3
IERG5100	Advanced Wireless Communications	3
IERG5130	Probabilistic Models and Inference Algorithms for Machine Learning	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
LSCI1001	Basic Concepts in Biological Sciences	3
LSCI1003	Life Sciences for Engineers	3
MATH1020	General Mathematics	3
MATH1510	Calculus for Engineers	3
PHYS1003	General Physics for Engineers	3
PHYS1110	Engineering Physics: Mechanics and Thermodynamics	3
UGFH1000/ UGFN1000	University General Education Foundation Course	3