THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

Suggested Study Plan for DSE Entrants Admitted to CUHK in 2022-23

University Core Requirements	
English	8
Chinese	5
Foundation GE	6
University GE: Areas A+C+D	7
College GE	6
Understanding China	1
Hong Kong in the Wider Constitutional Order	1
Digital Literacy and Computational Thinking	3
PE	2
	39
Major Requirements	
Faculty Package	9
Foundation Courses	11
Major Required	33
Major Electives	16
Major FYP	6
	75
Free Electives	**9**
	123 (Minimum unit requirement for graduation)

Major Programme Requirement

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

		Units
1.	Faculty Package: ENGG1110/ESTR1002, ENGG1120/ESTR1005, ENGG1130/ESTR1006	9
2.	Foundation Courses: ENGG2440/ESTR2004, ENGG2720/ESTR2014, MATH1510 [a] At least 3 units from the following list: CSCI1120/ESTR1100, CSCI1130/ESTR1102, ENGG1310/ESTR1003, ENGG2740/ESTR2016, ENGG2780/ESTR2020, FTEC2101/ESTR2520, SEEM2460/ESTR2540	11
3.	Required Courses:	
(a)	CSCI2100/ESTR2102, IERG1000, 1810, IERG2051/ESTR2302, IERG2060/ESTR2304, IERG2080/ESTR2306, IERG2310/ESTR2300, IERG2470/ESTR2308, IERG3060, IERG3080/ESTR3308, IERG3310/ESTR3310, IERG3800, 3810, 3820	32
(b)	IERG3840[b] or IERG3842	1
(c)	Research Component Courses[c]: IERG4998, 4999	6
4.	Elective Courses: Out of the 16 Elective Course units, at least **13 units** should be from the following courses: CSCI3150/ESTR3102, CSCI3160/ESTR3104, ENGG1820, IERG3010/ESTR3300, IERG3050, IERG3280/ESTR3302,	16

IERG3300/ESTR3304, IERG3320/ESTR3306, IERG3830, IERG4004/FTEC4004, IERG4030/ESTR4320, IERG4080/ESTR4312, IERG4090/ESTR4302, IERG4100/ESTR4304, IERG4110/ESTR4314, IERG4130/CSCI4130/ESTR4306, IERG4150/ESTR4322, IERG4160, IERG4180/ESTR4308, IERG4190, 4210, 4220, 4230, IERG4300/ESTR4300, IERG4320, IERG4330/ESTR4316, IERG4340, 4350, 4831, 4841, 5020, IERG5040/ENGG5392, IERG5090, IERG5100/ENGG5303, IERG5130, 5140, IERG5154/ENGG5301, IERG5200, 5230, IERG5240/ENGG5383, IERG5280, 5290, IERG5300/ENGG5302, IERG5310, 5320, 5330, 5340, 5350, 5590

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

Streams
Students may choose not to specialize in any stream or to specialize in no more than two streams and complete a minimum of 12 units of courses prescribed by the stream.

Big Data: Systems and Applications
CSCI3320, CSCI4180/ESTR4106, CSCI4190, ELEG5491, IERG3320/ESTR3306, IERG4080/ESTR4312, IERG4160, 4230, IERG4300/ESTR4300 (required), IERG4320, IERG4330/ESTR4316, IERG5130, 5350
Communications
IERG3010/ESTR3300, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4030/ESTR4320, IERG4100/ESTR4304, IERG4110/ESTR4314, IERG4130/CSCI4130/ESTR4306, IERG4230, 4340, 5020, IERG5040/ENGG5392, IERG5100/ENGG5303, IERG5200, 5230, 5280, 5330
Cyber Security
CSCI3150/ESTR3102, IERG4004/FTEC4004, IERG4130/CSCI4130/ESTR4306 (required), IERG4150/ESTR4322, IERG4210, 4220, 4350, IERG5240/ENGG5383, IERG5310, 5320, 5590
Internet Engineering
CSCI3150/ESTR3102 (required), IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4080/ESTR4312, IERG4090/ESTR4302, IERG4130/CSCI4130/ESTR4306, IERG4180/ESTR4308, IERG4190, 4210, 4831, 4841, 5090, 5280
Information Science
CSCI3160/ESTR3104, IERG3010/ESTR3300, IERG3050, IERG3280/ESTR3302, IERG3300/ESTR3304, IERG4100/ESTR4304, IERG4190, IERG4300/ESTR4300, IERG4320, IERG5154/ENGG5301, IERG5200, 5290

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. AIST/BMEG/CENG/CSCI/EEEN/ELEG/ENGG/ESTR/FTEC/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 and Foundation courses.
2. 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] (i) Non-JUPAS admittees and JUPAS admittees with HKDSE Mathematics Extended Modules I or II are required to attend a Mathematics Placement Test. Students who fail or are absent from the Placement Test will be required to take MATH1020 in the same term when they take MATH1510.
(ii) JUPAS admittees without HKDSE Mathematics Extended Modules I or II are required to take MATH1020 concurrently with MATH1510.
(iii) Students who fail MATH1510 in Term 1 will have to retake the course in Term 2. The pre-assigned course, ENGG1130, will also be dropped.

[b] CSCI2720 is not for students who have taken IERG3840, while the former is a required course for Minor in Computer Science. Students pursuing Minor in Computer Science should take IERG3842 to fulfill the Major Programme Requirement of Information Engineering.

[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 4 above to fulfill the elective requirements of the ELITE Stream. Item 3(c) Research Component Courses will not be included in these 9 units. A full list of ESTR courses is available at the ELITE website.

[f] Students can use BMEG/CENG/CSCI/ELEG/ENGG/IERG/MAEG/SEEM courses at 5000 level to substitute for ESTR courses at 3000 or 4000 level, subject to the approval of the Stream Director and the Associate Dean (Education).

[g] The requirement of at least 3 units of Engineering courses at 5000 level is a requirement for the ELITE Stream only. It should not be interpreted as a requirement of the Major Programme.

	Recommended Course Pattern	**Units**
First Year of Attendance	**1st term**	
	Faculty Package: ENGG1110/ESTR1002	3
	Foundation: MATH1510	3
	Major Required:	
	- IERG1000	1
	Digital Literacy and Computational Thinking: ENGG1003	3
	College General Education: 1 course	3
	Language: CHLT1001	3
	Physical Education: 1 course	1
	Term total	**17**
	2nd term	
	Faculty Package:	
	- ENGG1120/ESTR1005	3
	- ENGG1130/ESTR1006	3
	Major Required:	
	- IERG1810	1
	- IERG2060/ESTR2304	3
	- IERG2080/ESTR2306	3

	Language: ELTU1001 Physical Education: 1 course	3 1
	Term total	**17**
Second Year of Attendance	**1st term** Foundation: - ENGG2440/ESTR2004 - ENGG2720/ESTR2014 Major Required: - IERG2051/ESTR2302 - CSCI2100/ESTR2102 Foundation General Education: UGFH/UGFN (1 course) † Language: CHLT1200	 3 2 3 3 3 2
	Term total	**16**
	2nd term Major Required: - IERG2310/ESTR2300 - IERG2470/ESTR2308 - IERG3310/ESTR3310 - IERG3820 Foundation General Education: UGFH/UGFN (1 course) † University General Education: Area A/C/D (1 course) Language: ELTU2014	 3 3 3 1 3 2-3 3
	Term total	**18-19**

† Students may take the Foundation General Education class in Summer Session.

Third Year of Attendance	**1st term** Foundation: select 1-2 course(s) from CSCI1120/ESTR1100, CSCI1130/ESTR1102, ENGG1310/ESTR1003, ENGG2740/ESTR2016, ENGG2780/ESTR2020, FTEC2101/ESTR2520, SEEM2460/ESTR2540 Major Required: - IERG3060 - IERG3080/ESTR3308 - IERG3800 - IERG3810 Free Elective(s): 1 course University General Education: Area A/C/D (1 course)	3-4 3 3 1 1 3 2-3
	Term total	**16-18**
	2nd term Major Required: - IERG3840/3842* Major Elective(s): 3 courses University General Education: Area A/C/D (1 course) Language: ELTU3014	 1 8-9 3 2
	Term total	**14-15**

Fourth Year of Attendance	**1st term**	
	Major Required: IERG4998	3
	Major Elective(s): 2 courses	5-6
	College General Education: 1 course	3
	Understanding China	1
	Term total	**12-13**
	2nd term	
	Major Required: IERG4999	3
	Major Elective(s): 1 course	3
	Hong Kong in the Wider Constitutional Order	1
	Free Elective(s): 2 courses	6
	Term total	**13**
	Breakdown: Faculty Package + Foundation + Major Required	*59*
	Major Electives	*16*
	University Core Requirement	*39*
	Free Electives	*9*
	Minimum unit requirement for graduation	*123*

* CSCI2720 is not for students who have taken IERG3840, while the former is a required course for Minor in Computer Science. Students pursuing Minor in Computer Science should take IERG3842 to fulfill the Major Programme Requirement of Information Engineering.

Course List

(Note: For quick reference of the courses appeared on the study plan(s).
Please refer to CUSIS for course information)

Course Code	*Course Title*	*Unit(s)*
CHLT1100	University Chinese I	3
CHLT1200	University Chinese II	2
CSCI1120/ESTR1100	Introduction to Computing Using C++	3
CSCI1130/ESTR1102	Introduction to Computing Using Java	3
CSCI2100/ESTR2102	Data Structures	3
CSCI3150/ESTR3102	Introduction to Operating Systems	3
CSCI3160/ESTR3104	Design and Analysis of Algorithms	3
ELTU1001	Foundation English for University Studies	3
ELTU2014	English for Engineering I	3
ELTU3014	English for Engineering II	2
ENGG1110/ESTR1002	Problem Solving by Programming	3
ENGG1120/ESTR1005	Linear Algebra for Engineers	3
ENGG1130/ESTR1006	Multivariable Calculus for Engineers	3
ENGG1310/ESTR1003	Engineering Physics: Electromagnetics, Optics and Modern Physics	3
ENGG1820	Engineering Internship	1
ENGG2440/ESTR2004	Discrete Mathematics for Engineers	3
ENGG2720/ESTR2014	Complex Variables for Engineers	2
ENGG2740/ESTR2016	Differential Equations for Engineers	2
ENGG2780/ESTR2020	Statistics for Engineers	2
ENGG5301	Information Theory	3
ENGG5302	Random Processes	3
ENGG5303	Advanced Wireless Communications	3
ENGG5383	Applied Cryptography	3
ENGG5392	Lightwave System Technologies	3
FTEC2101/ESTR2520	Optimization Methods	3
IERG1000	Introduction to Information Engineering	1
IERG1810	Electronic Circuit Design Laboratory	1
IERG2051/ESTR2302	Signals and Systems	3
IERG2060/ESTR2304	Basic Analog and Digital Circuits	3
IERG2080/ESTR2306	Introduction to Systems Programming	3
IERG2310/ESTR2300	Principles of Communication Systems	3
IERG2470/ESTR2308	Probability Models and Applications	3
IERG3010/ESTR3300	Digital Communications	3
IERG3050	Simulation and Statistical Analysis	3
IERG3060	Microcontrollers and Embedded Systems	3
IERG3080/ESTR3308	Information and Software Engineering Practice	3
IERG3280/ESTR3302	Networks: Technology, Economics, and Social Interactions	3
IERG3300/ESTR3304	Introduction to Stochastic Processes	3
IERG3310/ESTR3310	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
IERG3830	Product Design and Development	3
IERG3840	Web Application Development Project	1
IERG3842	Mobile Network Application Development Project	1
IERG4004/FTEC4004	E-payment Systems and Cryptocurrency Technologies	3

Course Code	*Course Title*	*Unit(s)*
IERG4030/ESTR4320	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/CSCI4130/ESTR4306	Introduction to Cyber Security	3
IERG4150/ESTR4322	Introduction to Cryptography	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
IERG4300/ESTR4300	Web-scale Information Analytics	3
IERG4320	Data Science in Practice	3
IERG4330/ESTR4316	Programming Big Data Systems	3
IERG4340	Emerging Technologies in Information Engineering	3
IERG4350	Cloud Computing Security	3
IERG4831	Networking Laboratory I	2
IERG4841	Networking Laboratory II	2
IERG4998	Final Year Project I	3
IERG4999	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
IERG5230	Algorithms and Realization of Internet of Things Systems	3
IERG5240	Applied Cryptography	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
IERG5340	IT Innovation and Entrepreneurship	3
IERG5350	Reinforcement Learning	3
IERG5590	Advanced Topics in Blockchain	3
MATH1510	Calculus for Engineers	3
SEEM2460/ESTR2540	Introduction to Data Science	3
UGFH1000/ UGFN1000	University General Education Foundation Course	3