City University of Hong Kong

Curriculum Information Sheet for a Major/Degree

Department of Computer Science
Effective from Catalogue Term of Semester A, 2014/2015
Implemented in: Semester A, 2016/2017

The information provided on this form is the official record of the Major/Degree. It will be used for City University's database, publication in various City University publications including Blackboard, and documentation for students and others as required.

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Part I

Major (in English) : Computer Science
(in Chinese) : 電腦科學

Degree (in English) : Bachelor of Science with Honours
(in Chinese) : 榮譽理學士

Award Title (in English) : Bachelor of Science with Honours in Computer Science
(in Chinese) : 電腦科學榮譽理學士

(According to the approved structure of 4-year undergraduate degrees, the award title to be shown on a student's diploma will be the degree and the major.)

Maximum Period of Study: 8 years (for normative 4-year degree)
6 years (for Advanced Standing I (Note 1))
5 years (for Advanced Standing II (Note 2))

Minimum Number of Credit Units Required for the Award

Normative 4-year degree *(Minimum credit units for graduation: 120; Maximum credit units permitted for students: 144)*	**Advanced Standing I** (Note 1) *(Minimum credit units for graduation: 90; Maximum credit units permitted for students: 114)*	**Advanced Standing II (Senior-year Entry)** (Note 2) *(Minimum credit units for graduation: 60; Maximum credit units permitted for students: 84)*
120 Gateway Education: 30 College Requirements: 15 Major Requirements: 74 (Core: 59 + Elective: 15) Free Elective: 1	**95** Gateway Education: 21 College Requirements: waived Major Requirements: 74 (Core: 59 + Elective: 15) Free Elective: 0	**70** Gateway Education: 12 College Requirements: waived Major Requirements: 58 (Core: 43 + Elective: 15) Free Elective: 0

Aims of Major

This major aims to provide the best possible undergraduate education with a well-balanced emphasis on computer science theories, practical hands-on development skills as well as software engineering management know-hows needed to manage or work as a member of a software development team.

Through in-depth lectures and rigorous tutorials, laboratory work, projects and case studies, students will acquire a broad and thorough understanding of the theories and practical skills behind software design and development, software engineering, database systems, computer networks and information security. In addition, our study streams allow students to further specialize in different areas of expertise. The B.Sc. Computer Science includes a year long day-release industrial placement component that allows students to gain valuable real world work experience. Graduates can easily leverage this strong foundation to specialize in various technical and managerial positions.

Intended Learning Outcomes of Major (MILOs)

(Please state what the student is expected to be able to do at the completion of the Major according to a given standard of performance.)

Upon successful completion of this Major, students should be able to:

1. apply relevant mathematics and engineering methods to computing;
2. use computer programming for problem solving;
3. identify problems, analyze requirements, formulate design and implement solutions that meet realistic constraints, such as costs, operational, social, cultural, ethical, environmental, health and safety;
4. use software engineering methods and tools for developing quality software solutions;
5. communicate and use language effectively;
6. develop projects effectively and independently;
7. apply specialized knowledge in selected area(s) of Computer Science;
8. reflect on the ethical, legal, security and social responsibilities required of professional citizens in a global society;
9. stay abreast of contemporary issues in computing and recognize the need for, and able to engage in life-long learning;
10. collaborate and function effectively in team work situations including multi-disciplinary team;
11. function effectively in an industrial environment and apply learned skills to real-world problems;
12. acquire inquisitive attitude and skill to enable creating an original discovery or design related to computing.

Part II Degree Requirement

1. Gateway Education

	Normative 4-year Degree	**Advanced Standing I** (Note 1)	**Advanced Standing II (Senior-year Entry)** (Note 2)
English	6 credit units • GE1401 University English (3 CUs); and • Discipline-specific English (3 CUs)	6 credit units • GE1401 University English (3 CUs); and • Discipline-specific English (3 CUs)	3 credit units • Discipline-specific English (3 CUs)
GE1501 Chinese Civilisation – History and Philosophy	3 credit units	3 credit units	Not compulsory requirement
Area requirements: Area 1: Arts and Humanities Area 2: Study of Societies, Social and Business Organisations Area 3: Science and Technology	21 credit units (*A minimum of 3 credit units from each of the three areas)*	6 credit units	3 credit units
College/School-specified Courses	N/A	6 credit units^	6 credit units^

^College-specified courses for Advanced Standing I and II

Course Code	Course Title	Level	Credit Units	Remarks
GE2326	Probability in Action: From the Unfinished Game to the Modern World	B2	3	
Choose any ONE from the following list:				
GE2313	Global IT Case Studies	B2	3	
GE2315	Security and Privacy in the Information Age	B2	3	
GE2323	Mobile Social Networks: Practices, Challenges, and Beyond	B2	3	
GE2324	The Art and Science of Data	B2	3	
CB2100	Introduction to Financial Accounting**	B2	3	
CB2300	Management**	B2	3	
CB2500	Information Management**	B2	3	
CB2601	Marketing**	B2	3	

***Courses will be offered by the College of Business from Semester A, 2015/16.*

2. Chinese Language Requirement

From 2012 cohort onwards, students are required to satisfy the Chinese Language Requirement as follows:

(i)	Students with an HKDSE score below 4 in Chinese, or an HKALE AS Chinese Language and Culture score below D	CHIN1001 University Chinese I*

(ii)	Students with an HKDSE score of 4 or above in Chinese or an HKALE AS Chinese Language and Culture score D or above, or those who have successfully completed CHIN1001 University Chinese I	No requirement
(iii)	Students whose qualifications do not fall within (i) and (ii) above	No requirement

*The 3 credit units of CHIN1001 University Chinese I will NOT be counted towards the minimum credit units required for graduation and will NOT be included in the calculation of CGPA.

3. College/School Requirement, if any

Normative 4-year degree students of the College of Science and Engineering are required to earn 15 CUs in fulfilment of the College requirements.

Course Code	Course Title	Level	Credit Units	Remarks
Normative 4-year Degree				
Mathematics (6 credit units)				
MA1200 / MA1300	Calculus and Basic Linear Algebra I / Enhanced Calculus and Linear Algebra I	B1	3	
MA1201 / MA1301	Calculus and Basic Linear Algebra II / Enhanced Calculus and Linear Algebra II	B1	3	
Computing (3 credit units)				
CS1102 / CS1302	Introduction to Computer Studies / Introduction to Computer Programming	B1	3	
Science (6 credit units) *Choose **two** from the following three subject areas:*				
Physics				
AP1201	General Physics I	B1	3	
Chemistry				
BCH1100	Chemistry	B1	3	
Biology				
BCH1200	Discovery in Biology	B1	3	
Advanced Standing I (Note 1)				
College Requirement waived.				
Advanced Standing II (Senior-year Entry) (Note 2)				
College Requirement waived.				

Part III Major Requirement (74 credit units)

1. Core Courses (59 credit units)

16 credit units are waived for students admitted into Advanced Standing II including courses CS2115, CS2204, CS2310, CS2611, CS3201, SS3904

Required CS Courses – 53 credit units

Course Code	Course Title	Level	Credit Units	Remarks
CS2115	Computer Organization	B2	3	Waived for students admitted into ASII
CS2204	Fundamentals of Internet Applications Development	B2	3	Waived for students admitted into ASII
CS2310	Computer Programming	B2	3	Waived for students admitted into ASII
CS2312	Problem Solving and Programming	B2	3	
CS2611	Seminars on Contemporary Technology I	B2	1	Waived for students admitted into ASII
CS3103	Operating Systems	B3	3	
CS3201	Computer Networks	B3	3	Waived for students admitted into ASII
CS3334	Data Structures	B3	3	
CS3342	Software Design	B3	3	
CS3343	Software Engineering Practice	B3	3	
CS3402	Database Systems	B3	3	
CS3503	IT Professional Placement	B3	9	
CS3612	Seminars on Contemporary Technology II	B3	1	
CS4335	Design and Analysis of Algorithms	B4	3	
CS4514	Project	B4	9	

Required Supporting Courses - 6 credit units

SS3904	Science, Technology and Society for Computing	B3	3	Waived for students admitted into ASII
MA2185	Discrete Mathematics	B2	3	

2. Electives: (15 credit units)

Electives : *minimum 15 credit units from these electives*

Students may choose any one of the **four** streams to concentrate on by taking the **3** required courses of the selected stream and any **2** elective courses from the list. For those who do not want to focus on a selected stream, they can take any **5** elective courses from the list.

Course Code	Course Title	Level	Credit Units	Remarks
Information Security Stream : Stream Core				
CS4286	Internet Security and E-Commerce Protocols	B4	3	
CS4293	Topics on Computer Security	B4	3	
CS4394	Information Security and Management	B4	3	
Multimedia Computing Stream : Stream Core				
CS3483	Multimodal Interface Design	B3	3	
CS4182	Computer Graphics	B4	3	
CS4185	Multimedia Technologies and Applications	B4	3	

Course Code	Course Title	Level	Credit Units	Remarks
Software Engineering and Project Management Stream : Stream Core				
CS3346	Software Testing and Maintenance	B3	3	
CS3356	Managing Software Projects	B3	3	Exclusive with IS4500
CS4348	Software Quality Management	B4	3	
Data Science Stream: Stream Core				
CS3481	Fundamentals of Data Science	B3	3	
CS4480	Data-Intensive Computing	B4	3	
CS4487	Machine Learning	B4	3	
Other Electives :				
CS3183	Performance Evaluation	B3	3	
CS3184	Chinese Computing	B3	3	
CS3185	Computer Architecture	B3	3	
CS3282	E-Commerce Technology	B3	3	
CS3283	Distributed Systems	B3	3	
CS3371	E-Logistics Application System	B3	3	
CS3372	Enterprise Systems Development	B3	3	
CS3382	Web Usability Design and Engineering	B3	3	
CS3391	Advanced Programming	B3	3	
CS4183	Advanced Operating Systems	B4	3	
CS4186	Computer Vision & Image Processing	B4	3	
CS4187	Computer Vision for Interactivity	B4	3	
CS4280	Advanced Internet Applications Development	B4	3	
CS4284	Mobile Computing	B4	3	
CS4285	High Speed Multimedia Networks	B4	3	
CS4288	Cryptographic Algorithms and Protocols	B4	3	
CS4289	Pervasive Computing	B4	3	
CS4290	Digital Media and Rights Management	B4	3	
CS4292	Distributed Network Algorithms and Optimization	B4	3	
CS4295	Mobile Application Programming	B4	3	
CS4296	Cloud Computing	B4	3	
CS4297	Cloud Robotics and Automation	B4	3	
#CS4298	iOS Application Development	B4	3	
CS4367	Computer Games Design	B4	3	
CS4380	Web 2.0 Technologies	B4	3	
CS4381	Advanced Software Design	B4	3	
CS4385	Topics in Software Engineering	B4	3	
CS4386	AI Game Programming	B4	3	
CS4388	Artificial Intelligence and Art	B4	3	
CS4392	Topics in Theory of Computing	B4	3	
CS4482	Advanced Database Systems	B4	3	
CS4485	Information Retrieval	B4	3	
CS4486	Intelligent Systems	B4	3	
CS4552	Guided Study	B4	3	
EE4940	Digital Information Communications	B4	3	
IS4500	Information Systems Project Management	B4	3	Exclusive with CS3356

Course Code	Course Title	Level	Credit Units	Remarks
IS4501	Information Systems Audit	B4	3	
MA2172	Applied Statistics for Sciences and Engineering	B2	3	

Subject to approval.

Part IV Admission Requirements for Entry to the Major, if any (Department can state the prerequisites required for admission to the Major.)

To be eligible for admission, you must satisfy the General Entrance Requirements.

Alternative Entry

- Alternatively, you will be considered as meeting the programme entrance requirements if you hold a higher diploma or an associate degree in computing related discipline, or an equivalent qualification.

Part V Additional Information (e.g. Accreditation by professional and statutory bodies, etc.)

The programme is the first computer science programme in Hong Kong accredited by the Hong Kong Institution of Engineers (HKIE). Based on the Seoul Accord, graduates will receive reciprocal recognition from the equivalent bodies in Australia, Canada, Israel, New Zealand, South Africa, the UK and the US.

Note 1: For students with recognised Advanced Level Examinations or equivalent qualifications.
Note 2: For Associate Degree/Higher Diploma graduates admitted to the senior year.

Returned by :

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