

(Study Scheme - English)

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|---|---|
| Programme Title Computer Science and Engineering | |
| Study Scheme | |
| Applicable to students admitted in 2022-23 | |
| Major Programme Requirement | |
| Students are required to complete a minimum of 70 units of courses as follows: | |
| | Units |
| 1. School Package: BIO1008, CSC1003, 1004 ^[b] , DDA2001, MAT1001, 1002, 2041, PHY1001, STA2001 or STA2001H | 25 |
| 2. Required Courses: CSC3001, 3002, 3050, 3100, 3150, 3170, 4001, 4120, DDA3020, ECE2050 | 30 |
| 3. Elective Courses: Five courses selected from two groups, no less than three from (a), with the total of 15 credit units. | |
| (a) CSC2003, 3120, 3160, 3180, 3185, 4005, 4008, 4010, 4012, 4100, 4130, 4140, 4150, 4160, 4180, 4190, 4303, DDA4080, 4210, 4220, 4230, ECE3080, 4016 | 9 |
| (b) BIM3001, DDA3003, 3005, 4002, 4240, 4260, 4310, ECE3060, 3200, 4011, 4310, 4513, ECO3011, 3121, 3160, EIE3280, 4005, 4512, ERG4001, FIN3380, MAT3007, 3220, PHY1002, STA3005, 4001 | 6 |
| Total: | 70 |
| Notes: | |
| [a] | All CSC courses in School Package, all Major Required and Major Elective courses will be included in the calculation of Major GPA for honours classification. |
| [b] | Students can choose to take either CSC1001 and CSC1002 or CSC1003 and CSC1004 to fulfill the graduation requirement. |
| [c] | Streams of Specialization There is one stream of specialization: Artificial Intelligence Stream. Students may choose to specialize in the stream by selecting no less than four courses from the following list: CSC3160, CSC3180, CSC4008, CSC4100, DDA4210, DDA4220, DDA4230, ECE3060, |

ECE4011, ECE4513, MAT3007

Students may declare the stream at their expected graduation term. They may also decide not to declare any Stream, in which case they will not be subject to the Stream requirements.

(Study Scheme - Chinese)

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|---|-----------|
| 課程名稱 計算機科學與技術 | |
| 修讀辦法 二〇二二至二三年度及以後入學學生適用 | |
| 主修課程要求 | |
| 學生須至少修畢以下科目共 70 學分： | |
| | 學分 |
| 1. 學院課程： | |
| BIO1008, CSC1003, 1004 ^[b] , DDA2001, MAT1001, 1002, 2041, PHY1001, STA2001 or STA2001H | 25 |
| 2. 必修科目： | |
| CSC3001, 3002, 3050, 3100, 3150, 3170, 4001, 4120, DDA3020, ECE2050 | 30 |
| 3. 選修科目： | |
| 從以下科目中選修5科，其中(a)項的科目修讀不少於3科，選修科目總學分為15學分 | |
| (a) CSC2003, 3120, 3160, 3180, 3185, 4005, 4008, 4010, 4012, 4100, 4130, 4140, 4150, 4160, 4180, 4190, 4303, DDA4080, 4210, 4220, 4230, ECE3080, 4016 | 9 |
| (b) BIM3001, DDA3003, 3005, 4002, 4240, 4260, 4310, ECE3060, 3200, 4011, 4310, 4513, ECO3011, 3121, 3160, EIE3280, 4005, 4512, ERG4001, FIN3380, MAT3007,3220, PHY1002, STA3005, 4001 | 6 |
| 共： | 70 |
| 註： | |
| [a] 所有CSC學院課程、主修必修和主修選修科目將會計入主修科目之平均績點，並用以釐定學位等級。 | |
| [b] 學生可以修讀CSC1001, CSC1002或CSC1003, CSC1004以滿足畢業要求。 | |
| [c] 專修範疇 本課程提供一項專修範疇供學生修讀：人工智能。學生可選擇一個範疇，修讀指定科目。學生選修此專修範疇須修讀至少四門以下選修科目： CSC3160, CSC3180, CSC4008, CSC4100, DDA4210, DDA4220, DDA4230, ECE3060, | |

ECE4011, ECE4513, MAT3007

方向申報將於學生預計畢業學期進行。學生也可以不選擇專業範疇（如未選擇範疇，則不受特定範疇修課要求的限制）。

(Recommended Course Pattern - English)

Recommended Course Pattern

- Sufficient units should be allowed in each term for students to fulfill the University Core Requirements, which include: (i) 3 units of Chinese; (ii) 12 units of English; (iii) 1 unit of IT; (iv) 18 units of General Education; and (v) 2 units of Physical Education and Health.
- Programmes with different streams/concentrations are required to provide the recommended pattern for each stream/concentration.

| Major Programme Requirement of <u>Computer Science and Engineering</u> | | |
|---|---|--------------|
| | Recommended Course Pattern | Units |
| First Year of Attendance | 1 st term School Package: MAT2041, CSC1003, MAT1001 | 9 |
| | 2 nd term School Package: DDA2001, CSC1004, MAT1002, PHY1001 | 10 |
| Second Year of Attendance | 1 st term School Package: BIO1008 Major Required: CSC3001, 3002 | 3 6 |
| | 2 nd term School Package: STA2001 or STA2001H Major Required: CSC3100, ECE2050 | 3 6 |
| Third Year of Attendance | 1 st term Major Required: CSC3050, 3150 Major Elective(s): Any one elective course | 6 3 |
| | 2 nd term Major Required: CSC3170, 4001, DDA3020 | 9 |
| Fourth Year of Attendance | 1 st term Major Required: CSC4120 Major Elective(s): Any two elective courses | 3 6 |
| | 2 nd term Major Elective(s): Any two elective courses | 6 |
| Total (Major Requirement including School Package): | | 70 |

(Recommended Course Pattern – Chinese)

修課推介

1. 每學期均須預留足夠學分讓同學符合大學核心課程要求，包括：（一）中文三學分；（二）英文十二學分；（三）信息科技一學分；（四）通識教育十八學分及（五）體育與健康兩學分。
2. 有不同專修範圍的課程須為每項專修範圍提供課推介。

| 計算機科學與技術主修課程要求 | | |
|-------------------------|---|-----------|
| | 修課推介 | 學分 |
| 第一修業學年 | 第一學期 學院課程: MAT2041, CSC1003, MAT1001 | 9 |
| | 第二學期 學院課程: DDA2001, CSC1004, MAT1002, PHY1001 | 10 |
| 第二修業學年 | 第一學期 學院課程: BIO1008 主修必修科目: CSC3001, 3002 | 3 6 |
| | 第二學期 學院課程: STA2001 or STA2001H 主修必修科目: CSC3100, ECE2050 | 3 6 |
| 第三修業學年 | 第一學期 主修必修科目: CSC3050, 3150 主修選修科目: 任何一科選修科目 | 6 3 |
| | 第二學期 主修必修科目: CSC3170, 4001, DDA3020 | 9 |
| 第四修業學年 | 第一學期 主修必修科目: CSC4120 主修選修科目: 任何兩科選修科目 | 3 6 |
| | 第二學期 主修選修科目: 任何兩科選修科目 | 6 |
| 合共 (主修要求包括學院課程): | | 70 |

Course List

I. School Package for the School of Data Science

| Course Code | | Course Title (English) | Course Title (Chinese) | Unit(s) |
|-------------|------------|---|------------------------|---------|
| BIO1008 | | Chemistry and Life Sciences | 化學與生命科學 | 3 |
| Option A | CSC1001 | Introduction to Computer Science: Programming Methodology | 計算機科學導論：程序設計方法 | 3 |
| | CSC1002 | Computational Laboratory | 計算機實驗 | 1 |
| Option B | CSC1003 | Introduction to Computer Science and Java Programming | 計算機科學與Java程序設計導論 | 3 |
| | CSC1004 | Computational Laboratory Using Java | Java程序設計實驗 | 1 |
| DDA2001 | | Introduction to Data Science | 數據科學基礎 | 3 |
| MAT1001 | | Calculus I | 微積分（一） | 3 |
| MAT1002 | | Calculus II | 微積分（二） | 3 |
| MAT2041 | | Linear Algebra and Applications | 線性代數與應用 | 3 |
| PHY1001 | | Mechanics | 力學 | 3 |
| Option C | STA2001 | Probability and Statistics I | 概率及統計（一） | 3 |
| Option D | STA2001 H* | Honours Probability and Statistics I | 概率及統計榮譽課程（一） | 3 |

Remark: Students can choose to take either Option A or Option B, Option C or Option D to fulfill the graduate requirement.

II. Major Required Courses

| Course Code | Course Title (English) | Course Title (Chinese) | Unit(s) |
|-------------|-----------------------------------|------------------------|---------|
| CSC3001 | Discrete Mathematics | 離散數學 | 3 |
| CSC3002* | C/C++ Programming | C/C++程序設計 | 3 |
| CSC3050 | Computer Architecture | 計算機體系結構 | 3 |
| CSC3100 | Data Structures | 數據結構 | 3 |
| CSC3150 | Operating System | 操作系統 | 3 |
| CSC3170 | Database System | 數據庫系統 | 3 |
| CSC4001 | Software Engineering | 軟件工程 | 3 |
| CSC4120 | Design and Analysis of Algorithms | 算法設計及分析 | 3 |
| DDA3020 | Machine Learning | 機器學習 | 3 |
| ECE2050* | Digital Logic and Systems | 數字邏輯與系統 | 3 |

III. Major Elective Courses

| Course Code | Course Title (English) | Course Title (Chinese) | Unit(s) |
|-------------|--|------------------------|---------|
| BIM3001 | Bioinformatics | 生物信息學 | 3 |
| CSC2003 | Introduction to Java Programming | Java程序設計導論 | 3 |
| CSC3120 | Principles of Programming Languages | 程序設計語言原理 | 3 |
| CSC3160 | Fundamentals of Speech and Language Processing | 語音與語言處理基礎 | 3 |

| | | | |
|----------|---|----------------|---|
| CSC3180 | Fundamentals of Artificial Intelligence | 人工智能之基本原理 | 3 |
| CSC3185 | Introduction to Multimedia Systems | 多媒體系統導論 | 3 |
| CSC4005 | Parallel Programming | 並行程序設計 | 3 |
| CSC4008 | Techniques for Data Mining | 數據挖掘技術 | 3 |
| CSC4010 | Introduction to Theoretical Computer Science | 理論計算機科學導論 | 3 |
| CSC4012 | Introduction to Quantum Computation and Quantum Information | 量子計算與量子信息導論 | 3 |
| CSC4100 | Natural Language Processing | 自然語言處理 | 3 |
| CSC4130 | Introduction to Human-Computer Interaction | 人機接口導論 | 3 |
| CSC4140 | Computer Graphics | 計算機圖形學 | 3 |
| CSC4150 | Mobile Computing with Internet of Things | 物聯網移動計算 | 3 |
| CSC4160 | Cloud Computing | 雲端計算 | 3 |
| CSC4180 | Compiler Construction | 編譯器設計 | 3 |
| CSC4190 | Internet Programming and Applications | 互联网编程与应用 | 3 |
| CSC4303 | Network Programming | 網絡編程 | 3 |
| DDA3003* | Visual Analytics | 可視化分析 | 3 |
| DDA3005 | Numerical Methods | 數值方法 | 3 |
| DDA4002 | Stochastic Simulation | 隨機模擬 | 3 |
| DDA4080* | Capstone Project | 畢業設計 | 3 |
| DDA4210 | Advanced Machine Learning | 高等機器學習 | 3 |
| DDA4220 | Deep Learning and Applications | 深度學習與應用 | 3 |
| DDA4230 | Reinforcement Learning | 強化學習 | 3 |
| DDA4240 | Data Privacy and Ethics | 數據隱私和道德 | 3 |
| DDA4260 | Networked Life | 數據科學之應用：生活中的網絡 | 3 |
| DDA4310 | Computational Imaging | 計算成像 | 3 |
| ECE3060 | Introduction to Robotics | 機械人學概論 | 3 |
| ECE3200 | Video Games Design and Development | 電子遊戲設計與開發 | 3 |
| ECE4011 | Robotics and Intelligent Systems | 機械人與智能系統 | 3 |
| ECE4016 | Computer Networks | 計算機網絡 | 3 |
| ECE4310 | Programming for Robotics | 機器人操作系統與編程 | 3 |
| ECE4513 | Image Processing and Computer Vision | 圖像處理和計算機視覺 | 3 |
| ECO3011 | Intermediate Microeconomic Theory | 中級微觀經濟理論 | 3 |
| ECO3121 | Introductory Econometrics | 計量經濟學導論 | 3 |
| ECO3160 | Game Theory and Business Strategy | 博弈論與商業戰略 | 3 |
| ECE3080* | Introduction to Embedded Systems | 嵌入式系統概論 | 3 |
| EIE3280 | Networks: Technology, Economics and Society | 网络: 技术、经济和社会 | 3 |
| EIE4005 | Introduction to Coding and Cryptography | 編碼及密碼學導論 | 3 |
| EIE4512 | Digital Image Processing | 數字圖像處理 | 3 |
| ERG4001 | Principles of Entrepreneurship | 創業原則 | 3 |

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|---------|---|----------|---|
| FIN3380 | Introduction to Financial Data Analysis | 金融數據分析導論 | 3 |
| MAT3007 | Optimization | 最優化 | 3 |
| MAT3220 | Optimization II | 最優化（二） | 3 |
| PHY1002 | Physics Laboratory | 物理實驗 | 2 |
| STA3005 | Statistical Computing | 統計計算 | 3 |
| STA4001 | Stochastic Processes | 隨機過程 | 3 |

* The course title of CSC3002 is Introduction to Computer Science: Programming Paradigms for students who study the course before 2022-23 term 2. For students who study CSC3002 from 2022-23 term 2, the course title is C/C++ Programming.

在2022-23學年第二学期前修讀CSC3002，科目名稱為「計算機科學導論：程序設計範式」。在2022-23學年第二学期及以後修讀CSC3002，科目名稱為「C/C++程序設計」。

* The course code of Visual Analytics is DDA2003 for students who study the course before 2023-24 term 2. For students who study Visual Analytics from 2023-24 term 2, the course code is DDA3003.

在2023-24學年第二学期之前修讀「可視化分析」，科目代碼為DDA2003。在2023-24學年第二学期及以後修讀「可視化分析」，科目代碼為DDA3003。

* The course code and title of STA2003 Probability is changed to STA2001H Honours Probability and Statistics I since 2024-25 term 1. For students who study this course before 2024-25 term 1, the course code and title are STA2003 Probability. For students who study this course from 2024-25 term 1, the course code and title are STA2001H Honours Probability and Statistics I.

自2024-25學年第一学期起，「STA2003 概率論基礎」的科目代碼及科目名稱更改為「STA2001H 概率及統計榮譽課程（一）」。在2024-25學年第一学期以前修讀本科目，其科目代碼及科目名稱為「STA2003 概率論基礎」。自2024-25學年第一学期及以後修讀本科目，其科目代碼及科目名稱為「STA2001H 概率及統計榮譽課程（一）」。

* The course code of Digital Logic and Systems is EIE2050 for students who study the course before 2023-24 term 2. For students who study Digital Logic and Systems from 2023-24 term 2, the course code is ECE2050.

在2023-24學年第二学期之前修讀「數字邏輯與系統」，科目代碼為EIE2050。在2023-24學年第二学期及以後修讀「數字邏輯與系統」，科目代碼為ECE2050。

* The course code and title of EIE3080 Microprocessors and Computer Systems is changed to ECE3080 Introduction to Embedded Systems. For students who study the course before 2024-25 term 1, the course code and title are EIE3080 Microprocessors and Computer Systems. For students who study this course from 2024-25 term 1, the course code and title are ECE3080 Introduction to Embedded Systems.

自2024-25學年第一学期起，「EIE3080 微處理與計算機系統」的科目代碼及科目名稱更改為「ECE3080 嵌入式系統概論」。在2024-25學年第一学期以前修讀本科目，其科目代碼及科目名稱為「EIE3080 微處理與計算機系統」。自2024-25學年第一学期及以後修讀本科目，其科目代碼及科目名稱為「ECE3080 嵌入式系統概論」。

* The course CSC4050 Computing Capstone will not be offered since 2024-25 term 1, and it will be replaced by another course DDA4080 Capstone Project.

自2024-25學年第一学期起，CSC4050計算畢業設計將不再開設，此後本科目將由DDA4080畢業設計代替。