資訊工程學系
Department of Computer Science
111 學年度 (Academic Year 2022)

類別 Type	科目名稱 Courses Name	學分 Credit 第一學年 Grade 1 1st	2nd	第二學年 Grade 2 1st	2nd	第三學年 Grade 3 1st	2nd	第四學年 Grade 4 1st	2nd	備註 Remarks
基礎科學 (14 學分) Basic Science (14 credits)	物理(一)(二) Physics (I) (II)	3	3							三選一 (備註 3) Choose 1 out of 3 (Note 3)
	普通生物(一)(二) General Biology (I) (II)									
	化學(一)(二) Chemistry (I) (II)									
	微積分(一)(二) Calculus (I) (II)	4	4							
必修 (31 學分) Compulsory courses (31 credits)	生涯規劃及導師時間 Career Planning and Mentor's Hours	0	0							
	服務學習(一) Service Learning (I)		0							
	服務學習(二) Service Learning (II)			0						
	線性代數 Linear Algebra	3								
	計算機概論與程式設計 Intro. to Computers and Programming	3								備註 4 Note 4
	資料結構與物件導向程式設計 Data Structures and Object-oriented Programming		3							
	離散數學 Discrete Mathematics		3							
	數位電路設計 Digital Circuit Design		3							
	機率 Probability			3						
	演算法概論 Intro. to Algorithms			3						
	基礎程式設計 Basic Programming				0					備註 6 Note 6
	計算機組織 Computer Organization				3					
	作業系統概論 Intro. to Operating Systems					3				
	資訊工程研討 Computer Science Seminars					0				
	資訊工程專題(一)(二) Computer Science and Engineering Projects (I) (II)							2	2	

甲組 (59 學分) 自行選擇 「學程選修」 或 「跨域學程」 Program A (59 credits) Choose "Elective Program Courses" or "Cross-Disciplinary Program"	學程選修 Elective Program Courses	學程選修 (12 學分) Elective Program Courses (12 credits)	從七大主題學程自行選擇一個主題學程(詳見下表)。 Choose one topic out of seven topics (details as attached list).
		專業選修 (30 學分) Elective Professional Courses (30 credits)	需修本系所開授的各專業科目(含學士班、研究所選修課程)。 All elective courses offered by the Dept. of CS (including elective courses in both undergraduate and graduate programs)
		自由選修 (17 學分) Free Elective Courses (17 credits)	包含： 1.本系所及外系所開授的科目。 2.通識課程至多採計 4 學分。 不包含：體育、服務學習、軍訓、護理。 Including:

			1. All elective courses offered by the Dept. of CS and other department 2. General Education Curriculum: at most 4 credits. Not including: Physical Education, Service Learning, Military Training Office, Health Services
	跨域學程 Cross-Disciplinary Program	跨域學程 (28-32 學分) Cross-Disciplinary Program (28-32 credits)	從本校跨域學程中自行選擇一個跨域學程，並依規申請。 Choose one "Cross-Disciplinary Program" in our university, and apply by regulations.
		自由選修 (27-31 學分) Free Elective Courses (27-31 credits)	包含： 1.本系所及外系所開授的科目。 2.通識課程至多採計 4 學分。 不包含：體育、服務學習、軍訓、護理。 Including: 1. All elective courses offered by the Dept. of CS and other department 2. General Education Curriculum: at most 4 credits. Not including: Physical Education, Service Learning, Military Training Office, Health Services
乙組 (59 學分) Program B (579 credits)		學程選修 (12 學分) Elective Program Courses (12 credits)	從七大主題學程自行選擇一個主題學程(詳見下表)。 Choose one topic out of seven topics (details as attached list).
		專業選修 (30 學分) Elective Professional Courses (30 credits)	需修本系所開授的各專業科目(含學士班、研究所選修課程)。 All elective courses offered by the Dept. of CS (including elective courses in both undergraduate and graduate programs)
		自由選修 (17 學分) Free Elective Courses (157 credits)	包含： 1.本系所及外系所開授的科目。 2.通識課程至多採計 4 學分。 不包含：體育、服務學習、軍訓、護理。 Including: 1. All elective courses offered by the Dept. of CS and other department 2. General Education Curriculum: at most 4 credits. Not including: Physical Education, Service Learning, Military Training Office, Health Services
本系最低畢業學分 Graduation Requirements			128

七大主題學程
Seven Topics of Program
111 學年度(Academic Year 2022)

主題 Topics	科目名稱 Courses Name	第二學年 Grade 2		第三學年 Grade 3		第四學年 Grade 4	
		1st	2nd	1st	2nd	1st	2nd
人工智慧與 數據科學 AI and Data Science	資料庫系統概論 Intro. to Database Systems	3					
	人工智慧概論 Intro. to Artificial Intelligence		3				
	機器學習概論 Intro. to Machine Learning			3			
	人工智慧總整與實作 Artificial Intelligence Capstone				3		
資訊安全 Computer Security	計算機網路概論 Intro. to Computer Networks	3					
	密碼學概論 或 密碼工程 Intro. to Cryptography or Cryptography Engineering		3				
	網路程式設計概論 Intro. to Network Programming			3			
	電腦安全總整與實作 Computer Security Capstone				3		
多媒體工程 Multimedia Engineering	數值方法 Numerical Methods		3				
	計算機圖學概論 Intro. to Computer Graphics			3			
	影像處理概論 Intro. to Image Processing				3		
	多媒體與人機互動總整與實作 Multimedia and Human Computer Interaction Capstone					3	
網路工程 Network Engineering	計算機網路概論 Intro. to Computer Networks	3					
	通訊原理與無線網路 Principles of Communications and Wireless Networks		3				
	網路程式設計概論 Intro. to Network Programming			3			
	網路系統總整與實作 Network Systems Capstone				3		
系統軟體 System Software	編譯器設計概論 Intro. to Compiler Design			3			
	計算機系統管理 Computer System Administration					3	
	高等 UNIX 程式設計 Advanced Programming in the UNIX Environment				3		
	作業系統總整與實作 Operating Systems Capstone						3
軟硬體整合 Software and Hardware Integration	數位電路實驗 Digital Circuit Lab.	3					
	編譯器設計概論 Intro. to Compiler Design			3			
	微處理機系統原理與實作 Microprocessor Systems: Principles and			3			

主題 Topics	科目名稱 Courses Name	說明	上學期	下學期
	Implementation			
	嵌入式系統總整與實作 Embedded Systems Capstone			3
計算理論 Theory of Computation	人工智慧概論 Intro. to Artificial Intelligence	左列課程任選四科 Choose four courses from the left column		3
	數值方法 Numerical Methods			3
	正規語言概論 Intro. to Formal Languages			3
	組合數學 Combinatorial Mathematics			3
	競技程式設計(一) Competitive Programming (I)			3
	圖形理論 或 圖形理論導論 Graph Theory or Elementary graph theory		3	
	隨機演算法 Randomized Algorithms		3	
	資訊理論與壓縮編碼的應用 Information Theory and Data Compression Practices			3
	機器學習演算法理論基礎 Algorithmic Foundation of Machine Learning			3
	近似演算法 Introduction to Approximation Algorithms		3	

備註 Note

1.請參閱本校共同課程通則及核心課程修習辦法，修習本校共同課程。

2.請參閱本校「學士班外籍生共同課程通則」。外籍生不足的 2 學分，以「專業或自由選修」補足。

　　Details as " Regulations for General Education Courses of Undergraduate International Students". International Students lack two credits can take "Elective Professional Courses" or "Free Elective Courses".

3.若選修物理(一)(二)，共計 8 學分，其中 2 學分可採計為畢業學分。

　　Students who complete "Physics (I) and (II)", which are 8 credits in total, of which 2 credits can be counted as graduation credits.

4.學生「入學前」參加本系『程式能力鑑定』成績為 5 分(含)以上，得「於入學時」申請免修『計算機概論與程式設計』(無學分)。

　　Before entering the university, students who pass the "Basic Computer Programming Exam" with higher than 5 points can submit the application of credit exemption for "Intro. to Computers and Programming" (0 credit).

5.重要課程擋修制度請參閱本系學士班修業辦法。

　　Important prerequisite on course selection refer to Bachelor's Degree Regulations for Department of Computer Science.

6.『基礎程式設計』及格條件為通過『程式能力鑑定』。

　　To pass "Basic Programming", students must pass the "Basic Computer Programming Exam."

7. 畢業前須通過 1 門本系開授或認可之英文授課專業課程。（註：專題或研討類型之課程除外。）

   Students must complete one professional, English-medium course offered by the Department of CS. （Note: Projects or seminars are not included）

8. 各組必修學分須修習本系所開授之課程。必修課程需重修，然因不可抗拒之理由，需修習外系所開課程，以抵本系必修課程者，請參閱本系學士班修業辦法。

   Students must take compulsory courses that are offered by the CS college. Students who failed compulsory courses must retake the same courses. Please refer to Bachelor's Degree Regulations for Department of Computer Science.

9. 修讀本系雙主修必修科目為基礎科學 14 學分、必修 31 學分及專業選修 30 學分。Students pursuing a double major should complete Basic Science Courses (14 credits), Compulsory Courses (31 credits) and Elective Professional Courses (30 credits).

資訊工程學系輔系科目表
Department of Computer Science Minor Program
111 學年度(Academic Year 2022)

科目名稱 Course Name	學分數 Credits	科目名稱 Course Name	學分數 Credits	選別 Type
演算法概論 Introduction to Algorithms	3	作業系統概論 Introduction to Operating Systems	3	
計算機組織 Computer Organization	3	基礎程式設計 Basic Programming	0	必修 Required
計算機概論與程式設計 Intro. to Computers and Programming	3	資料結構與物件導向程式設計 Data Structures and Object-oriented Programming Design	3	
離散數學 Discrete Mathematics	3	數位電路設計 Digital Circuit Design	3	
資料庫系統概論 Introduction to Database	3	人工智慧概論 Intro. to Artificial Intelligence	3	
機器學習概論 Intro. to Machine Learning	3	計算機網路概論 Introduction to Computer Networks	3	
密碼學概論 或 密碼工程 Intro. to Cryptography or Cryptography Engineering	3	數值方法 Numerical Methods	3	
網路程式設計概論 Network Programming	3	影像處理概論 Introduction to Image Processing	3	
計算機圖學概論 Introduction to Computer Graphics	3	編譯器設計概論 Introduction to Compiler Design	3	任選三門 At least 3
通訊原理與無線網路 Principles of Communications and Wireless Networks	3	計算機系統管理 Computer System Administration	3	
高等 UNIX 程式設計 Advanced Programming in the UNIX Environment	3	數位電路實驗 Digital Circuit Lab.	3	
微處理機系統原理與實作 Microprocessor Systems: Principles and Implementation	3	正規語言概論 Introduction to Formal Languages	3	
圖形理論 Graph Theory	3			

註1：上列課程需為本系開設之課程，如有不可抗拒的理由，需修習外系所開課程請參閱本系
　　　學士班修業辦法。

註2：重要課程擋修制度請參閱本系學士班修業辦法。