

資訊工程學系(資訊工程組)
Department of Computer Science (CS Program)

107 學年度 2018/2019 Academic Year (AY)

資訊工程組必修課程 Required courses for CS Program										
科目名稱 Course Title	學分 Credit	第一學年 Grade1		第二學年 Grade2		第三學年 Grade3		第四學年 Grade4		備註 Remarks
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	
物理(一)(二) Physics (I)(II)	6	3	3							三選一 (備註 1) Pick 1 out of 3 (Note 1)
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)	8	4	4							
線性代數 Linear Algebra	3	3								
計算機概論與程式設計 Intro. to Computers and Programming	3	3								備註 2 Note 2
資料結構與物件導向程式設計 Data Structures and Object-oriented Programming	3		3							
離散數學 Discrete Mathematics	3		3							
數位電路設計 Digital Circuit Design	3		3							
機率 Probability	3			3						
演算法概論 Intro. to Algorithms	3			3						
作業系統概論 Intro. to Operating Systems	3					3				
正規語言概論 Intro. to Formal Language	3				3					
計算機組織 Computer Organization	3				3					
資訊工程專題(一)(二) Computer Science and Engineering Projects(I)(II)	4						2	2		
計算機網路概論 Intro. to Computer Networks	3			3						
微處理機系統實驗 Microprocessor System Lab.	3					3				
編譯器設計概論 Intro. to Compiler Design	3					3				
生涯規劃及導師時間 Career Planning and Mentor's Hours	0	0	0							(備註 3) (Note 3)

服務學習(一) Service Learning I	0		0							
服務學習(二) Service Learning II	0			0						
資訊工程研討 Computer Science Seminars	0					0				
基礎程式設計 Basic Programming	0					0				本課程及格條件為通過『程式能力鑑定』(備註 4) Pass=Passing Basic Computer Programming Exam (Note 4)
學術倫理教育 Academic Ethics Education	0									備註 5 (Note 5)
合計 Total	57									

本組最低畢業學分為 130 學分〔外語課程必修 8 學分〕

註 1：資訊工程組必修 57 學分+專業選修 31 學分+自由選修 12 學分=須至少 100 學分

註 2：專業選修：需修本系所開授的各專業科目(含大學部、研究所選修課程)。

註 3：自由選修：本系所及外系所開授的科目(不含通識、服務學習、體育、軍訓、護理)。

一、重要課程擋修制度：

(1)若資料結構與物件導向程式設計[1 下]不及格，擋修演算法概論[2 上]。

(2)若基礎程式設計[2 下]不及格，擋修以下科目：

- 資訊工程專題(一)[3 上、3 下]
- 資訊工程專題(二)[3 下、4 上]
- 編譯器設計概論[3 上]
- 網路程式設計概論[3 上]
- 計算機圖學概論[3 上]

(3)若資訊工程專題(一)[3 上、3 下]不及格，擋修資訊工程專題(二)[3 下、4 上]。

二、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。)

Graduation requirements: 130 credits (English-medium courses: 8 credits).

Note 1: 57 credits (CS Program required) + 31 credits (Elective Professional Courses) + 12 credits (Free Elective Courses) = 100 credits (at least).

Note 2: Elective Professional Courses: all elective courses offered by the Dept. of CS (including elective courses in both undergraduate and graduate programs).

Note 3: Free Elective Courses: all elective courses offered by the Dept. of CS and other department (Not including the courses of center of general education, Service Learning, Physical Education, Military Training office, health services).

1. Important prerequisite on course selection:

(1) **Pass the Data Structures and Object-oriented Programming [Spring of AY 1] before taking Intro. to Algorithm [Fall of AY 2].**

(2) **Pass the Basic Programming [Spring of AY 2] before taking**

- **Computer Science and Engineering Projects (I) [both Fall and Spring of AY 3]**
- **Computer Science and Engineering Projects (II) [Spring of AY 3 and Fall of AY 4]**
- **Intro. to Compiler Design [Fall of AY 3]**
- **Intro. to Network Programming [Fall of AY 3]**
- **Intro. to Computer Graphics [Fall of AY 3]**

(3) **Pass the Computer Science and Engineering Projects (I) [both Fall and Spring of AY 3].**

before taking Computer Science and Engineering (II) [Spring of AY 3 and Fall of AY 4].

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

備註 1：若選修物理(一)(二)，共計 8 學分，則可減少專業選修學分 2 學分。

備註 2：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)。

備註 3：自 101 學年度起入學者，學士班一年級學生每學期必修『導師時間』(0 學分)，需通過 2 學期始得畢業。

備註 4：『基礎程式設計』及格條件為通過『程式能力鑑定』。

備註 5：未通過「學術倫理教育」總測驗之學生不得領取學位證書，請參閱「學術倫理教育課程實施辦法」。

備註 6：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，須填送表一。

備註 7：擬修習外系英文授課專業課程，並申請為本系畢業學分規定之「畢業前須通過 1 門本系開授或認可之英文授課專業課程」者，須填送表二。

Note 1: Students who complete “Physics (I) and (II)”, which are 8 credits in total, may waive 2 credits from Elective Professional Courses.

Note 2: 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).

Note 3: All the undergraduate freshmen are required to take “Mentor Hour” every semester (0 credits) and pass two courses before graduation.

Note 4: To pass “Basic Programming”, students must pass the “Basic Computer Programming Exam”.

Note 5: Students who fail the final test of “Academic Ethics Education” will not be issued the diploma. Please see “National Chiao Tung University Academic Ethics Education Program Implementation Rules” for details.

Note 6: Students must take compulsory courses that are offered by the CS college. Students who failed compulsory courses must retake the same courses. Students may apply for an exception (retaking the same courses offered by other colleges at NCTU) by submitting Form I with their reasons indicated.

Note 7: Students who choose to take professional, English-medium course offered by other colleges at NCTU must fill in and submit Form II for approval.

資訊工程學系(資電工程組)

Department of Computer Science (CS + EE Program)

107 學年度 2018/2019 Academic Year (AY)

資電工程組必修課程 Required Courses for CS + EE Program										
科目名稱 Course Title	學分 Credit	第一學年 Grade1		第二學年 Grade2		第三學年 Grade3		第四學年 Grade4		備註 Remarks
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	
物理(一)(二) Physics (I)(II)	6	3	3							三選一 (備註 1) Pick 1 out of 3 (Note 1)
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)	8	4	4							
線性代數 Linear Algebra	3	3								
計算機概論與程式設計 Intro. to Computers and Programming	3	3								備註 2 (Note 2)
資料結構與物件導向程式設計 Data Structures and Object-oriented Programming	3		3							
離散數學 Discrete Mathematics	3		3							
數位電路設計 Digital Circuit Design	3		3							
數位電路實驗 Digital Circuit Lab.	3			3						
演算法概論 Intro. to Algorithms	3			3						
作業系統概論 Intro. to Operating Systems	3					3				
計算機組織 Computer Organization	3				3					
資訊工程專題(一)(二) Computer Science and Engineering Projects(I)(II)	4						2	2		
微處理機系統實驗 Microprocessor System Lab.	3					3				
電路與電子學(一) Electrical Circuits and Electronics I	3			3						
編譯器設計概論 Intro. to Compiler Design	3					3				
訊號與系統 Signals and Systems	3				3					
嵌入式系統設計概論與實作 Introduction to Embedded	3						3			

Systems Design and Implementation									
生涯規劃及導師時間 Career Planning and Mentor's Hours	0	0	0						(備註 3) (Note 3)
服務學習(一) Service Learning I	0		0						
服務學習(二) Service Learning II	0			0					
資訊工程研討 Computer Science Seminars	0					0			
基礎程式設計 Basic Programming	0					0			本課程及格條件為通過『程式能力鑑定』 (備註 4) Pass=Passing Basic Computer Programming Exam (Note 4)
學術倫理教育 Academic Ethics Education	0								備註 5 (Note 5)
合計	60								

本組最低畢業學分為 130 學分〔外語課程必修 8 學分〕

註 1：資電工程組必修 60 學分+專業選修 28 學分+自由選修 12 學分=須至少 100 學分

註 2：專業選修：需修本系所開授的各專業科目(含大學部、研究所選修課程)。

註 3：自由選修：本系所及外系所開授的科目(不含通識、服務學習、體育、軍訓、護理)。

一、重要課程擋修制度：

(1)若資料結構與物件導向程式設計[1 下]不及格，擋修演算法概論[2 上]。

(2)若基礎程式設計[2 下]不及格，擋修以下科目：

- 資訊工程專題(一)[3 上、3 下]
- 資訊工程專題(二)[3 下、4 上]
- 編譯器設計概論[3 上]
- 網路程式設計概論[3 上]
- 計算機圖學概論[3 上]

(3)若資訊工程專題(一)[3 上、3 下]不及格，擋修資訊工程專題(二)[3 下、4 上]。

二、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。)

Graduation Requirements: 130 credits (English-medium courses: 8 credits).

Note 1: 60 credits (CS+EE Program) + 28 credits (Elective Professional Courses) + 12 credits (Free Elective Courses) = 100 credits (at least).

Note 2: Elective Professional Courses: all elective courses offered by the Dept. of CS (including elective courses in both undergraduate and graduate programs)

Note 3: Free Elective Courses : all elective courses offered by the Dept. of CS and other department (not including the courses of center of general education, Service Learning, Physical Education, Military Training office, health services).

1. Important prerequisite on course selection:

(1) **Pass the Data Structures and Object-oriented Programming [Spring of AY 1] before taking Intro. to Algorithm [Fall of AY 2].**

(2) **Pass the Basic Programming [Spring of AY 2] before taking**

• **Computer Science and Engineering Projects (I) [both Fall and Spring of AY 3]**

• **Computer Science and Engineering Projects (II) [Spring of AY 3 and Fall of AY 4]**

- Intro. to Compiler Design [Fall of AY 3]
- Intro. to Network Programming [Fall of AY 3]
- Intro. to Computer Graphics [Fall of AY 3]
- (3) Pass the Computer Science and Engineering Projects (I) [both Fall and Spring of AY 3] before taking Computer Science and Engineering (II) [Spring of AY 3 and Fall of AY 4].

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

備註 1：若選修物理(一)(二)，共計 8 學分，則可減少專業選修學分 2 學分。

備註 2：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)。

備註 3：自 101 學年度起入學者，學士班一年級學生每學期必修『導師時間』(0 學分)，需通過 2 學期始得畢業。

備註 4：『基礎程式設計』及格條件為通過『程式能力鑑定』。

備註 5：未通過「學術倫理教育」總測驗之學生不得領取學位證書，請參閱「學術倫理教育課程實施辦法」。

備註 6：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，須填送表一。

備註 7：擬修習外系英文授課專業課程，並申請為本系畢業學分規定之「畢業前須通過 1 門本系開授或認可之英文授課專業課程」者，須填送表二。

Note 1: Students who complete “Physics (I) and (II)”, which are 8 credits in total, may waive 2 credits from Elective Professional Courses.

Note 2: 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).

Note 3: All the undergraduate freshmen are required to take “Mentor Hour” every semester (0 credits) and pass two courses before graduation.

Note 4: To pass “Basic Programming”, students must pass the “Basic Computer Programming Exam”.

Note 5: Students who fail the final test of “Academic Ethics Education” will not be issued the diploma. Please see “National Chiao Tung University Academic Ethics Education Program Implementation Rules” for details.

Note 6: Students must take compulsory courses that are offered by the CS college. Students who failed compulsory courses must retake the same courses. Students may apply for an exception (retaking the same courses offered by other colleges at NCTU) by submitting Form I with their reasons indicated.

Note 7: Students who choose to take professional, English-medium course offered by other colleges at NCTU must fill in and submit Form II for approval.

資訊工程學系(網路與多媒體工程組)

Department of Computer Science (NME Program)

107 學年度 2018/2019 Academic Year (AY)

科目名稱 Course Title	學分 Credit	第一學年 Grade1		第二學年 Grade2		第三學年 Grade3		第四學年 Grade4		備註 Remarks
		1st	2nd	1st	2nd	1st	2nd	1st	2nd	
		物理(一)(二) Physics (I)(II)	6	3	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)	8	4	4							
線性代數 Linear Algebra	3	3								
計算機概論與程式設計 Intro. to Computers and Programming	3	3								備註 2 Note 2
資料結構與物件導向程式設計 Data Structures and Object-oriented Programming	3		3							
離散數學 Discrete Mathematics	3		3							
數位電路設計 Digital Circuit Design	3		3							
機率 Probability	3			3						
演算法概論 Intro. to Algorithms	3			3						
作業系統概論 Intro. to Operating Systems	3					3				
正規語言概論 Intro. to Formal Language	3				3					
計算機組織 Computer Organization	3				3					
資訊工程專題(一)(二) Computer Science and Engineering Projects(I)(II)	4						2	2		
生涯規劃及導師時間 Career Planning and Mentor's Hours	0	0	0							(備註 3) (Note 3)
服務學習(一) Service Learning I	0		0							
服務學習(二) Service Learning II	0			0						
資訊工程研討 Computer Science Seminars	0					0				
基礎程式設計	0				0					本課程及格條件為

Basic Programming									通過『程式能力鑑定』 (備註 4) Pass=Passing Basic Computer Programming Exam (Note 4)
計算機網路概論 Intro. to Computer Networks	3			3					網路領域 專業課程 (9 學分) Network track course (9 credits) 至少 選擇 一組 (備 註 5) Pick 1 out of 2 track (Note 5)
網路程式設計概論 Intro. to Network Programming	3					3			
網路通訊原理 Principles of Network Communications	3				3				
計算機圖學概論 Intro. to Computer Graphics	3					3			
影像處理概論 Intro. to Image Processing	3						3		
數值方法 Numerical Methods	3				3				
學術倫理教育 Academic Ethics Education	0								備註 6(Note 6)
合計 Total	57								

本組最低畢業學分為 130 學分〔外語課程必修 8 學分〕

註 1：網路與多媒體工程組必修 57 學分+專業選修 31 學分+自由選修 12 學分=須至少 100 學分

註 2：專業選修：需修本系所開授的各專業科目(含大學部、研究所選修課程)。

註 3：自由選修：本系所及外系所開授的科目(不含通識、服務學習、體育、軍訓、護理)。

一、重要課程擋修制度：

(1)若資料結構與物件導向程式設計[1 下]不及格，擋修演算法概論[2 上]。

(2)若基礎程式設計[2 下]不及格，擋修以下科目：

- 資訊工程專題(一)[3 上、3 下]
- 資訊工程專題(二)[3 下、4 上]
- 編譯器設計概論[3 上]
- 網路程式設計概論[3 上]
- 計算機圖學概論[3 上]

(3)若資訊工程專題(一)[3 上、3 下]不及格，擋修資訊工程專題(二)[3 下、4 上]。

二、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。)

Graduation requirements: 130 credits (English-medium courses: 8 credits).

Note 1: 57 credits (NME Program) + 31 credits (Elective Professional Courses) + 12 credits (Free Elective Courses) = 100 credits (at least).

Note 2: Elective Professional Courses: all elective courses offered by the Dept. of CS (including elective courses in both undergraduate and graduate program)

Note 3: Free Elective Courses : all elective courses offered by the Dept. of CS and other department (Not including the courses of center of general education, Service Learning, Physical Education, Military Training office, health services).

1. Important prerequisite on course selection:

(1) **Pass the Data Structures and Object-oriented Programming [Spring of AY 1] before taking**

Intro. to Algorithm [Fall of AY 2].

(2) Pass the Basic Programming [Spring of AY 2] before taking

- Computer Science and Engineering Projects (I) [both Fall and Spring of AY 3]**
- Computer Science and Engineering Projects (II) [Spring of AY 3 and Fall of AY 4]**
- Intro. to Compiler Design [Fall of AY 3]**
- Intro. to Network Programming [Fall of AY 3]**
- Intro. to Computer Graphics [Fall of AY 3]**

(3) Pass the Computer Science and Engineering Projects (I) [both Fall and Spring of AY 3] before taking Computer Science and Engineering (II) [Spring of AY 3 and Fall of AY 4].

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

備註 1：若選修物理(一)(二)，共計 8 學分，則可減少專業選修學分 2 學分。

備註 2：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)。

備註 3：自 101 學年度起入學者，學士班一年級學生每學期必修『導師時間』(0 學分)，需通過 2 學期始得畢業。

備註 4：『基礎程式設計』及格條件為通過『程式能力鑑定』。

備註 5：網路領域專業課程及多媒體領域專業課程需二擇一，並修滿該領域專業課程。

備註 6：未通過「學術倫理教育」總測驗之學生不得領取學位證書，請參閱「學術倫理教育課程實施辦法」。

備註 7：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，須填送表一。

備註 8：擬修習外系英文授課專業課程，並申請為本系畢業學分規定之「畢業前須通過 1 門本系開授或認可之英文授課專業課程」者，須填送表二。

Note 1: Students who complete “Physics (I) and (II)”, which are 8 credits in total, may waive 2 credits from Elective Professional Courses.

Note 2: 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).

Note 3: All the undergraduate freshmen are required to take “Mentor Hour” every semester (0 credits) and pass two courses before graduation.

Note 4: To pass “Basic Programming”, students must pass the “Basic Computer Programming Exam”.

Note 5: Pick 1 out of 2 track (Network track and Multimedia track), and pass all courses of the track.

Note 6: Students who fail the final test of “Academic Ethics Education” will not be issued the diploma. Please see “National Chiao Tung University Academic Ethics Education Program Implementation Rules” for details.

Note 7: Students must take compulsory courses that are offered by the CS college. Students who failed compulsory courses must retake the same courses. Students may apply for an exception (retaking the same courses offered by other colleges at NCTU) by submitting Form I with their reasons indicated.

Note 8: Students who choose to take professional, English-medium course offered by other colleges at NCTU must fill in and submit Form II for approval.

資訊工程學系輔系科目表

Department of Computer Science Minor Program

107 學年度(Academic Year 2018)

科目名稱 Course Name	學分 Credits	科目名稱 Course Name	學分 Credits	選別 Type
演算法概論◎ Introduction to Algorithms	3	作業系統概論 Introduction to Operating Systems	3	必修 Required
計算機組織 Computer Organization	3	基礎程式設計 Basic Programming	0	
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	任選三 門 At least 3
正規語言概論 Introduction to Formal Languages	3	微處理機系統實驗 Microprocessor System Lab.	<u>3</u>	
軟體工程概論 Introduction to Software Engineering	3	網路程式設計概論◎ Network Programming	3	
計算機網路概論 Introduction to Computer Networks	3	編譯器設計概論◎ Introduction to Compiler Design	3	
人工智慧概論 Introduction to Artificial Intelligence	3	資料庫系統概論 Introduction to Database	3	
計算機圖學概論◎ Introduction to Computer Graphics	3	訊號與系統 Signals and Systems	3	
影像處理概論 Introduction to Image Processing	3	網路通訊原理 Principles of Network Communications	<u>3</u>	
電路與電子學(一) Electrical Circuits and Electronics I	3	數位系統設計 Digital Systems Design	3	
<u>嵌入式系統設計概論與實作</u> <u>Introduction to Embedded Systems Design and Implementation</u>	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，修課前需經系主任同意。

註 2：「軟體工程概論」可以資工系「系統化軟體開發實務」課程抵免之。

◎：重要課程擋修制度請參閱如下：

(1)若資料結構與物件導向程式設計[1 下]→若該科不及格，擋修演算法概論[2 上]。

(2)若基礎程式設計[2 下]不及格，擋修以下科目：

- 編譯器設計概論[3 上]
- 軟硬體協同設計概論與實作[3 下]。
- 網路程式設計概論[3 上]→
- 計算機圖學概論[3 上]。