

# 國立交通大學資訊工程學系跨域學程實施要點

National Chiao Tung University Department of Computer Science

## Implementation Guidelines for Cross-Disciplinary Program

資訊工程學系105學年度第9次系課程委員會修訂(106年5月9日)

資訊學院105學年度第4次教學與課程委員會修訂(106年05月12日)

105學年度第4次教務會議核備(106年06月08日)

資訊工程學系106學年度第8次系課程委員會修訂(107年04月20日)

資訊學院106學年度第4次教學與課程委員會修訂(107年05月02日)

106學年度第4次教務會議核備(107年06月21日)

資訊工程學系108學年度第11次系課程委員會修訂(109年04月16日)

資訊學院108學年度第4次教學與課程委員會修訂(109年5月19日)

108學年度第4次教務會議核備(109年6月16日)

資訊工程學系109學年度第3次課程委員會修訂(109年11月2日)

資訊學院109學年度第1次教學與課程委員會修訂(109年11月17日)

109學年度第1次課程委員會通過(109年11月30日)

109學年度第2次教務會議核備通過(109年12月28日)

- 一、依據國立交通大學跨域學程實施辦法，國立交通大學資訊工程學系(以下簡稱本系)為鼓勵學生進行跨領域學習，建立跨域學習深度，協助學生拓展第二專長，提供學生可以在畢業學分不增加(或僅少量增加)情況下，修畢跨域學程，特訂定本要點。

Article One These Implementation Guidelines are prescribed by National Chiao Tung University Department of Computer Science(hereinafter referred to as Our Department) based on NCTU Cross-Disciplinary Program Implementation Regulations to provide the opportunity for students to proceed cross-disciplinary learning without increasing graduate credits (or only a few extra credits) in order to encourage students to conduct cross-disciplinary study, build the depth of cross-disciplinary study, and assist students to expand second specialty.

- 二、跨域學程係指由交通大學的學系、研究所、或學院提出模組課程，模組課程應包含該領域基礎核心知識，且總學分數以30學分為原則(最低可為28學分，最高不可超過32學分)，學生修習跨域學程，其課程將包含所屬學系的跨域學程模組課程以及第二專長系所或學院的跨域學程模組課程，並可於畢業證書上加註第二專長模組課程為「跨域專長」。

Article Two The cross-disciplinary program here means the cross-disciplinary module curriculum proposed by the departments, institutes or colleges in National Chiao Tung University. Module curriculum should include the core knowledge curriculum of the field and the total credits will be based on 30 credits (the minimum 28 credits and no more than 32 credits). The cross-disciplinary program that students take will include the cross-disciplinary program module curriculum of the department they belong to as well as the cross-disciplinary program module curriculum from the second specialty department or college. The module curriculum of the second specialty could be remarked as “Cross-Disciplinary Specialty” on the diploma.

### 三、本要點修業規定

#### Article Three Policies of these Guidelines

##### 1. 本系學生欲修習跨域學程者

##### 1. For the student of our department who would like to take cross-disciplinary program

- (1) 得於下學期向本系提出申請，申請時註明欲申請的第二專長系所或學院，申請期限將由本系課程委員會提前一個月進行公告，公告中說明需準備的審查資料以及當年度本系開放給本系學生修讀跨域學程的名額，申請案經本系課程委員會審查通過後，需送到第二專長系所或學院審查，通過雙邊審查後，方可進入跨域學程。

- (1) The application could be submitted to our department during the second semesters. The department or college of the second specialty that the student would like to apply for must be remarked on the

application form, and the application deadline would be announced one month in advance by the Curricular Committee at our department. The information of evaluation documents needed to be prepared as well as the quota opened to the students of our department to study for this program in the given year will be released on the announcement. The application should be sent to the department or college of the second specialty for evaluation after it is approved by the Curricular Committee at our department. Students could only take the cross-disciplinary program after evaluation by both sides.

- (2) 本系學生修習跨域學程課程包：校定必修(含共同必修 26 學分)，基礎學科 14 學分，必修 31 學分，學程選修 12 學分，本系必修及主題學程課程(參閱本系必修科目表)，本系專業選修課程(至少 12 學分)(需修本系所開授的各專業科目，含大學部、研究所選修課程)，以及第二專長系所或學院的跨域模組課程(以下簡稱他系跨域模組課程)，畢業學分以 128 學分為原則。他系跨域模組課程認定為跨域專長，於畢業證書本系名稱後加註此跨域專長。本系甲組選擇跨域學程為畢業條件者，依本系必修科目表規定。
  - (2) For a CS student that has been enrolled in a cross-disciplinary program offered by another department or college, all the courses that the student must take include compulsory courses of the university (including 26 credits of general education subjects), compulsory courses offered by the CS department, professional elective course offered by the CS department (at least 12 credits)(including elective courses in both undergraduate and graduate programs), and courses of the cross-disciplinary program where the student has been enrolled with minimal 128 credits for graduation. When a CS student fulfills all the requirements of a cross-disciplinary program offered by another department, the student will be recognized as possessing a cross-disciplinary specialty at that department. The recognition will be noted right after the title of the CS department on the student's diploma.
  - (3) 本系學生修習跨域學程，若無法修畢跨域學程課程，得選擇放棄跨域學程，改修習原資訊工程學系的學士學位課程。
  - (3) For students at our department who study for cross-disciplinary program but are not able to complete the program, they shall give up the cross-disciplinary program and transfer to study for the bachelor degree program at the original Department of Computer Science.
2. 外系學生欲修習跨域學程且選擇本系做為其跨域專長者
2. For students of other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty
    - (1) 得於下學期向其所屬學系(以下簡稱原系)提出申請，通過原系以及本系的雙邊審查後，方可進入跨域學程。
      - (1) They could submit the application to the department that they belong to during the second semesters, they could only take the cross-disciplinary program after approved by both their original department and our department.
      - (2) 外系學生修讀跨域學程且選擇本系做為其跨域專長者，其課程包含：校必修(含共同必修 24 學分)，原系基礎必修課程，原系跨域模組課程，以及列示於『資訊工程學系跨域模組課程必修科目表』的模組課程，畢業學分以 128 學分為原則，並於畢業證書原系名稱後加註資訊工程為其跨域專長。
        - (2) The courses for the students of other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty include required courses of the

university (including 24 credits of general education subjects), core curriculum at their original department, cross-disciplinary module curriculum at their original department, and the module curriculum listed on “The Required Course List for the students study cross-disciplinary module curriculum in Department of Computer Science” with at least 128 graduate credits. The Department of Computer Science will be remarked as their cross-disciplinary specialty after the title of their original department on the diploma.

3. 若外系與本系已另訂定兩系雙向鎖定之跨域學程實施要點，則相關學生應依該實施要點提出修習跨域學程申請。
  4. If our department and other department has already set up cross-disciplinary program between them, the students should submit the application to the department that they belong.
- 四、本系指定一名專任教師擔任跨域學程導師，與外系所或學院的跨域學程導師組成導師群，專責輔導跨域學程的學生。

Article Four Our department assigned one full-time teacher to be the mentor of the cross-disciplinary program and formed mentor group with teachers of cross-disciplinary program at other department or college to give guidance to cross-disciplinary program students.

- 五、為鼓勵不同系所或學院合作提出跨域共授課程，由兩位以上教師開授跨領域之創新整合式課程，得依本校教師授課鐘點核計原則第九條第六款規定，教師的授課鐘點數可按到場時數計，但以開課前該門課程之實際簽呈為依據。

Article Five In order to encourage different departments or colleges working together for the proposal of cross-disciplinary curriculum, the number of teaching hours for the innovating integrated curriculum offered by more than two teachers could be calculated by the actual time of teaching according to Subparagraph 6, Article 9 of National Chiao Tung University Teaching Hours Accounting Principle; however, it will be in accordance with the official approval of the curriculum before the course starts.

- 六、本要點如有未盡事宜，悉依本校學則及其他相關規定辦理。

Article Six If there is any unaccomplished matter of these guidelines, it shall be handled in accordance with the school constitution of our university as well as other relevant regulations.

- 七、本要點經校級課程委員會通過並提教務會議核備後實施，修訂時亦同。

Article Seven These guidelines were approved by Curricular Committee at university level and then submitted to the Council of Academic Affairs for approval-for-reference before putting it into practice; the same shall be done upon any amendment thereto.

## 資訊工程學系 跨域模組課程 必修科目表

### Compulsory subject list of Department of Computer Science Cross-disciplinary Program

類別 Category	選別 Type	科目名稱 Courses	學分 Credits		開課 系所 Dept.	備註 Remarks
			上學期 Fall Semester	下學期 Spring Semester		
本系跨域模 組 (31 學分) Cross- Disciplinary module curriculum of our department  修畢於畢業 證書加註： 「跨域專 長：資訊工 程」  It could be remarked as “Cross- Disciplinary Specialty : Computer Science” on the diploma after the module curriculum is completed.	必修 (15 學分)  Compulsory courses (15 credits)	計算機概論與程式設計 Intro. to Computers and Programming	3		資工系 Dept. of Computer Science	若為原系之必 修課程，不足 之學分得於本 系跨域模組選 修課任選。 Excluding compulsory courses of the original department
		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(邏輯設計) Digital Circuit Design		3		
		演算法概論 Intro. to Algorithms	3			
		基礎程式設計 Basic Programming		0		
	選修 (16 學分)  Elective courses (16 credits)	作業系統概論 Intro. to Operating Systems	3		資工系 Dept. of Computer Science	任選 16 學分 Optional 16 Credits
		計算機組織 Computer Organization		3		
		資訊工程專題 (一)(二) Computer Science and Engineering Projects(I)(II)	2	2		
		編譯器設計概論 Intro. to Compiler Design	3			
嵌入式系統設計概論與實作 或嵌入式系統總整與實作 二 擇一 Intro. to Embedded Systems Design and Implementation or Embedded Systems Capstone			3			
計算機網路概論 Intro. to Computer Networks		3				
網路程式設計概論 Intro. to Network Programming		3				
網路通訊原理 或通訊原理與 無線網路 二擇一 Principles of Network Communications or Principles of		3				

	Communications and Wireless Networks			
	計算機圖學概論 Intro. to Computer Graphics	3		
	影像處理概論 Intro. to Image Processing		3	
	數值方法 Numerical Methods		3	
	機率 Probability	3		
	訊號與系統 Signals and Systems		3	
	正規語言概論 Intro. to Formal Language		3	
	微處理機系統實驗 Microprocessor System Lab.	3		
	線性代數 Linear Algebra	3		
	數位電路實驗 Digital Circuit Lab.	3		
	電路與電子學(一) Electrical Circuits and Electronics I	3		