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

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

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Service Learning(I) | | | | | | | | |
| 服務學習(二)<br>Service Learning (II) | 0 | | 0 | | | | | |
| 資訊工程研討<br>Computer Science Seminars | 0 | | | 0 | | | | |
| 基礎程式設計<br>Basic Programming | 0 | | 0 | | | | | Pass=Passing Basic Computer Programming Exam (Note 3) |
| Total | 56 | | | | | | | |

本組最低畢業學分為 128 學分〔外語課程必修 8 學分〕

註 1：資訊工程組必修 56 學分＋專業選修 32 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)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)基礎程式設計[2 下]

     →若該科不及格，擋修資訊工程專題(一)[3 上、3 下]、資訊工程專題(二)[3 下、4 上]

     →若該科不及格，擋修編譯器設計概論[3 上]

     →若該科不及格，擋修嵌入式系統設計概論與實作[3 下]。

     →若該科不及格，擋修網路程式設計概論[3 上]、計算機圖學概論[3 上]。

   (3)資訊工程專題(一)[3 上、3 下]

     →若該科不及格，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。)

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：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 3：『基礎程式設計』及格條件為通過『程式能力鑑定』。

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Graduation requirements: 128 credits (English-medium courses: 8 credits).

Note 1: 56 credits (CS Program required)＋32 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) **Data Structures and Object-oriented Programming [Spring of AY 1]**

   →Pass the aforementioned course before taking **Intro. to Algorithm [Fall of AY 2]**.

   (2) **Basic Programming [Spring of AY 2]**

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

   →Pass the aforementioned course before taking **Intro. to Compiler Design [Fall of AY 3]**.

   →Pass the aforementioned course before taking **Hardware-Software Co-design and Implementation [Spring of AY 3]**.

   →Pass the aforementioned course before taking **Intro. to Network Programming [Fall of AY 3]** and **Intro. to Computer Graphics [Fall of AY 3]**

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

→ Pass the aforementioned course 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**）

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

Note 3: To pass "Basic Programming", students must pass the "Basic Computer Programming Exam".

# 資訊工程學系（資電工程組）
# Department of Computer Science (CS + EE Program)
## 105 學年度 2016/2017 Academic Year (AY)(106.12 修訂)

| 科目名稱 Course Title | 學分 Credit | 第一學年 Grade 1 | | 第二學年 Grade 2 | | 第三學年 Grade 3 | | 第四學年 Grade 4 | | 備註 Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 資電工程組必修課程 Required Courses for CS + EE Program | | | | | | | | | | |
| | | 1st | 2nd | 1st | 2nd | 1st | 2nd | 1st | 2nd | |
| 物理(一)(二) Physics (I)(II) | 6 | 3 | 3 | | | | | | | 三選一 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 | | | | | | | | |
| 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. | 2 | | | 2 | | | | | | |
| 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 | 2 | | | | | 2 | | | | |

| 課程 Course | 學分 | 1上 | 1下 | 2上 | 2下 | 3上 | 3下 | 4上 | 4下 | 備註 |
|---|---|---|---|---|---|---|---|---|---|---|
| Microprocessor System Lab. | | | | | | | | | | |
| 電路與電子學(一)<br>Electrical Circuits & Electronics I | 3 | | | 3 | | | | | | |
| 編譯器設計概論<br>Intro. to Compiler Design | 3 | | | | | 3 | | | | |
| 訊號與系統<br>Signals and Systems | 3 | | | | 3 | | | | | |
| **嵌入式系統設計概論與實作**<br>**Introduction to Embedded Systems Design and Implementation** | 3 | | | | | | 3 | | | |
| 導師時間<br>Mentor's Hours | 0 | 0 | 0 | | | | | | | (Note 2) |
| 服務學習(一)<br>Service Learning(I) | 0 | | 0 | | | | | | | |
| 服務學習(二)<br>Service Learning (II) | 0 | | | 0 | | | | | | |
| 資訊工程研討<br>Computer Science Seminars | 0 | | | | | 0 | | | | |
| 基礎程式設計<br>Basic Programming | 0 | | | | 0 | | | | | Pass=Passing Basic Computer Programming Exam (Note 3) |
| Total | 58 | | | | | | | | | |

本組最低畢業學分為 128 學分〔外語課程必修 8 學分〕

註1：資電工程組必修 58 學分＋專業選修 30 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)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)基礎程式設計[2 下]

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

　　→若該科不及格，擋修編譯器設計概論[3 上]。

　　→若該科不及格，擋修**嵌入式系統設計概論與實作**[3 下]。

　　→若該科不及格，擋修網路程式設計概論[3 上]、計算機圖學概論[3 上]。

　(3)資訊工程專題(一)[3 上、3 下]

　　→若該科不及格，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。**)

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：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3：『基礎程式設計』及格條件為通過『程式能力鑑定』。

| |
|---|
| Graduation Requirements: 128 credits (English-medium courses: 8 credits). |
| Note 1: 58 credits (CS+EE Program)＋30 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, |

1. Important prerequisite on course selection:

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

   →Pass the aforementioned course before taking **Intro. to Algorithm [Fall of AY 2]**.

   (2) **Basic Programming [Spring of AY 2]**

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

   →Pass the aforementioned course before taking **Intro. to Compiler Design [Fall of AY 3]**.

   →Pass the aforementioned course before taking **Hardware-Software Co-design and Implementation [Spring of AY 3]**.

   →Pass the aforementioned course before taking Intro. to **Network Programming [Fall of AY 3]** and **Intro. to Computer Graphics [Fall of AY 3]**

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

   →Pass the aforementioned course 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**）

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

Note 3: To pass "Basic Programming", students must pass the "Basic Computer Programming Exam".

# 資訊工程學系(網路與多媒體工程組)
## Department of Computer Science (NME Program)
### 105 學年度 2016/2017 Academic Year (AY) (106.12 修訂)

| 科目名稱 Course Title | 學分 Credit | 第一學年 Grade 1 | | 第二學年 Grade 2 | | 第三學年 Grade 3 | | 第四學年 Grade 4 | | 備註 Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1st | 2nd | 1st | 2nd | 1st | 2nd | 1st | 2nd | |
| 物理(一)(二) Physics (I)(II) | 6 | 3 | 3 | | | | | | | 三選一 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 & Programming | 3 | 3 | | | | | | | | |
| 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 | | | | | | | |

| 課程名稱 | 學分 |  |  |  |  |  |  |  | 備註 |
|---|---|---|---|---|---|---|---|---|---|
| 機率<br>Probability | 3 |  |  | 3 |  |  |  |  |  |
| 演算法概論<br>Intro. to Algorithms | 3 |  |  | 3 |  |  |  |  |  |
| 作業系統概論<br>Intro. to Operating Systems | 3 |  |  |  |  | 3 |  |  |  |
| 正規語言概論<br>Intro. to Formal Language | 3 |  |  | 3 |  |  |  |  |  |
| 計算機組織<br>Computer Organization | 3 |  |  | 3 |  |  |  |  |  |
| 資訊工程專題(一)(二)<br>Computer Science and Engineering Projects(I)(II) | 4 |  |  |  |  |  | 2 | 2 |  |
| 導師時間<br>Mentor's Hours | 0 | 0 | 0 |  |  |  |  |  | (Note 2) |
| 服務學習(一)<br>Service Learning(I) | 0 |  | 0 |  |  |  |  |  |  |
| 服務學習(二)<br>Service Learning(II) | 0 |  |  | 0 |  |  |  |  |  |
| 資訊工程研討<br>Computer Science Seminars | 0 |  |  |  |  | 0 |  |  |  |
| 基礎程式設計<br>Basic Programming | 0 |  |  | 0 |  |  |  |  | Pass=Passing Basic Computer Programming Exam (Note 3) |
| 計算機網路概論<br>Intro. to Computer Networks | 3 |  |  | 3 |  |  |  |  | 網路領域專業課程 Network track course (9 credits) |
| 網路程式設計概論<br>Intro. to Network Programming | 3 |  |  |  |  | 3 |  |  | 領域專業課程至少選擇一組 Pick 1 out of 2 track (Note 4) |
| 網路通訊原理<br>Principles of Network Communications | 3 |  |  | 3 |  |  |  |  |  |
| 計算機圖學概論<br>Intro. to Computer Graphics | 3 |  |  |  |  | 3 |  |  | 多媒體領域專業課程 Multimedia track course (9 credits) |
| 影像處理概論<br>Intro. to Image Processing | 3 |  |  |  |  |  | 3 |  |  |
| 數值方法<br>Numerical Methods | 3 |  |  | 3 |  |  |  |  |  |
| Total | 57 |  |  |  |  |  |  |  |  |

本組最低畢業學分為 128 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)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)基礎程式設計[2 下]

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

     →若該科不及格，擋修編譯器設計概論[3 上]

     →若該科不及格，擋修嵌入式系統設計概論與實作[3 下]。

     →若該科不及格，擋修網路程式設計概論[3 上]、計算機圖學概論[3 上]。

(3)資訊工程專題(一)[3 上、3 下]
　　→若該科不及格，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。**)

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：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 3：『基礎程式設計』及格條件為通過『程式能力鑑定』。
備註 4：網路專業領域課程及多媒體專業領域課程需二擇一，並修滿該專業領域課程。

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Graduation requirements: 128 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) **Data Structures and Object-oriented Programming [Spring of AY 1]**
   →Pass the aforementioned course before taking **Intro. to Algorithm [Fall of AY 2]**.
   (2) **Basic Programming [Spring of AY 2]**
   →Pass the aforementioned course before taking **Computer Science and Engineering Projects (I) [both Fall and Spring of AY 3]** and **Computer Science and Engineering Projects (II) [Spring of AY 3 and Fall of AY 4].**
   →Pass the aforementioned course before taking **Intro. to Compiler Design [Fall of AY 3]**.
   →Pass the aforementioned course before taking **Hardware-Software Co-design and Implementation [Spring of AY 3]**.
   →Pass the aforementioned course before taking **Intro. to Network Programming [Fall of AY 3]** and **Intro. to Computer Graphics [Fall of AY 3]**
   (3) **Computer Science and Engineering Projects (I) [both Fall and Spring of AY 3]**
   → Pass the aforementioned course 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**）

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

Note 3: To pass "Basic Programming", students must pass the "Basic Computer Programming Exam".

Note 4: Pick 1 out of 2 track (Network track and Multimedia track), and pass all courses of the track.

# 資訊工程學系輔系科目表
## Department of Computer Science Minor Program
105 學年度(Academic Year 2016)

| 科目名稱<br>Course Name | 學分數<br>Credits | 科目名稱<br>Course Name | 學分數<br>Credits | 選別<br>Type |
|---|---|---|---|---|
| 演算法概論<br>Introduction to Algorithms | 3 | 作業系統概論<br>Introduction to Operating Systems | 3 | 必修<br>Required |
| 計算機組織<br>Computer Organization | 3 | 基礎程式設計<br>Basic Programming | 0 | |
| 計算機概論與程式設計<br>Intro to Computers and Programming | 3 | 資料結構與物件導向程式設計<br>Data Structures and Object-oriented Programming Design | 3 | |
| 離散數學<br>Discrete Mathematics | 3 | 數位電路設計<br>Digital Circuit Design | 3 | 任選三門<br>At least 3 |
| 正規語言概論<br>Introduction to Formal Languages | 3 | 計算機網路實驗<br>Computer Networks Labs | 3 | |
| 軟體工程概論<br>Introduction to Software Engineering | 3 | 網路程式設計概論<br>Network Programming | 3 | |
| 計算機網路概論<br>Introduction to Computer Networks | 3 | 編譯器設計概論<br>Introduction to Compiler Design | 3 | |
| 人工智慧概論<br>Introduction to Artificial Intelligence | 3 | 資料庫系統概論<br>Introduction to Database | 3 | |
| 計算機圖學概論<br>Introduction to Computer Graphics | 3 | 訊號與系統<br>Signal and Systems | 3 | |
| 影像處理概論<br>Introduction to Image Processing | 3 | 微分方程<br>Differential Equations | 3 | |
| 電路與電子學(一)<br>Electrical Circuits and Electronics I | 3 | 數位系統設計<br>Digital Systems Design | 3 | |
| 嵌入式系統設計概論與實作<br>**Introduction to Embedded Systems Design and Implementation** | 3 | | | |

註：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。