**元智大學 資訊工程學系 必修科目表**

**Department of Computer Science and Engineering**

**Yuan Ze University**

**List of Required Courses**

**（106學年度入學新生適用For students admitted in academic year 2017）**

106.04.26 一○五學年度第五次教務會議通過

Approved by the 5th Academic Affairs Meeting, Academic Year 2016, on April 26, 2017

106.06.21 一○五學年度第六次教務會議修訂通過

Amended by the 6th Academic Affairs Meeting, Academic Year 2016, on June 21, 2017

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| 學年Year學期Semester科目Course | 第一學年1st Academic Year | 第二學年2nd Academic Year | 第三學年3rd Academic Year | 第四學年4th Academic Year |
| 上Fall | 下Spring | 上Fall | 下Spring | 上Fall | 下Spring | 上Fall | 下Spring |
| 共同必修科目University Compulsory（23） | 國文（一）Chinese (I)（2） | 國文（二）Chinese (II)（2） |  |  |  |  |  |  |
| 英語（一）English (I)（2） | 英語（二）English (II)（2） |  |  |  |  |  |  |
| 程式語言共4學分，依各院修課規則辦理。(開課名稱：基礎程式設計)Fundamental Computer Programming is a four-credit course. For those who would like to registered “Fundamental computer programming”, he/she has to meet the college requirement. (Course Name: Fundamental Computer Programming) |
| 「英語（一）」及「英語（二）」為基礎課程，共計二學期四學分。除了「英語（一）」及「英語（二）」外，應修習主題式英語課程三學期六學分，畢業前需修畢三個不同英語課程，始取得畢業資格。大一英語能力後測TOEIC模擬測驗成績未達350分者，應修習「應試加強班」，修習「應試加強班」期間之期末TOEIC模擬測驗成績未達350分者，則該科成績將「不及格」，並應再次修習「應試加強班」，直到取得TOEIC模擬測驗分數達350分(含)始得修習其他主題式英語課程。English (I) and (II) are 4 credits elementary courses for the freshmen to complete within two semesters. Except English (I) and English (II), Students are required to obtain 6 credits from 3 different thematic courses before graduation. The “English Testing” course is provided to students who fail to score 350 in a TOEIC mock held in the end of their first academic year. They will need to take the exam again after the course and pass; otherwise, they will need to take another “English Testing” course next semester.英語檢定English Testing（2）、經典五十Fifty Canonized Books（2）、服務學習Service Learning（1） |
| 體育Physical Education（0） | 體育Physical Education（0） | 體育Physical Education（0） | 體育Physical Education（0） |  |  |  |  |
| 體育除修習大一至大二4個學期外，另需通過「游泳能力檢定」及「心肺適能檢定」等二項檢測，列為畢業門檻。Beside taking PE courses for 4 semesters (Year 1 to 2), students must pass both swimming and cardiopulmonary function tests. |
| 通識教育科目General Education（10） | 通識課程分為人文藝術﹑自然科學、社會科學及生命科學四大類。學生須於四領域中各選修兩學分課程，共計8學分，其餘2學分學生可自由選擇，由通識講座課程、微課自主學習或通識四大領域課程中選課。惟按所屬院（系）之不同，學生選修四大領域課程時需符合以下規定：The General Education program comprises four categories：Humanities, Natural Science, Social Science and Life Science. Students are required to take a two-credit course from each category to get eight credits before graduation. The rest two credits can be chosen from the General Education Lecture course, Micro Credit and Self-Study course or four categories upon their needs. However, there are rules and limitations set by each college for taking a course from the four categories：

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| (系)院 (Dept.)College | 選課規定 Course requirements |
| 工學院、電通學院與**資工系**College of EngineeringCollege of Electrical and Communication Engineering Dept. of Computer Science &Engineering | 不得再選自然領域(GN)，須於社會(GS),生命(LS),人文藝術(LE)三領域中選課General Education courses in the area of Nature Science are not required; please select the courses among the areas of GS, LS and LE. |

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| 系必修科目Required Courses（71） | 微積分（一）Calculus(I)CS147(3) | 微積分（二）Calculus(II)CS148(3) | 線性代數Linear AlgebraCS233(3) | 機率與統計Probability and StatisticsCS226(3) | 資訊講座Special Lectures in Computer Science and EngineeringCS308(1) | 專業實習（一）Practical Training(I)CS400(3) | 專業實習（三）Practical Training(III)CS426(3) | 影像處理概論Introduction to Image ProcessingCS362(3) |
| 程式設計（一）Computer Programming(I)CS106(3) | 離散數學Discrete MathematicsCS107(3) | 資料結構Data StructuresCS203(3) | 演算法概論Introduction to AlgorithmsCS309(3) | 編譯程式概論Introduction to CompilerCS321(3) | 專題製作（一）Special Project(I)CS416(3) | 專題製作（二）Special Project(II)CS417(3) |  |
| 普通物理General PhysicsCS152(3) | 程式設計（二）Computer Programming(II)CA114(3) | 資料通訊概論Introduction to Data CommunicationsCS229(3) | 組合語言與計算機組織Assembly Language and Computer OrganizationCS250(3) | 內嵌式系統設計與實習Embedded System Design and PracticeCS379(3) | 軟體工程Software EngineeringCS377(3) | 資料庫系統概論Introduction to Database SystemCS352(3) |  |
| 資訊概論Introduction to Computer ScienceCS140(3) | 電子電路學Circuit TheoryCS252(4) | 數位系統設計Digital System DesignCS204(3) | 作業系統概論Introduction to Operating SystemCS305(3) | 超大型積體電路設計導論Introduction to VLSI DesignCS378(3) | 微處理機系統設計Microprocessor System DesignCS320(3) | 電腦與網路安全概論Introduction to Computer and Network SecurityCS354(3) |  |
|  | 電子電路實驗Electronic Circuits Lab.CS213(1) | 數位系統實驗（一）Introduction to Digital Systems Lab.(I)CS254(1) | 數位系統實驗（二）Introduction to Digital Systems Lab.(II)CS255(1) | 計算機網路概論Introduction to Computer NetworksCS311(3) | 積體電路設計自動化導論Introduction to IC Design AutomationCS338(3) | 人機互動設計概論Introduction to Human-Computer Interaction DesignCS313(3) |  |
|  |  |  |  | 計算機圖學概論Introduction to Computer GraphicsCS314(3) | 開放平台軟體Open Platform SoftwareCS381(3) | 網路攻防Network Security: Attacks and DefensesCS355(3) |  |
|  |  |  |  | 雲端運算與服務Cloud Computing and ServicesCS337(3) | 無線網路概論Introduction to Wireless InternetCS335(3) | 資料探勘Data MiningCS412(3) |  |
|  |  |  |  |  | 多媒體系統概論Introduction to Multimedia SystemCS401(3) |  |  |
|  |  |  |  |  | ＵＮＩＸ系統概論Introduction to UNIX SystemCS312(3) |  |  |
|  |  |  |  |  | 人工智慧概論Introduction to Artificial Intelligence CS310(3) |  |  |
|  |  |  |  |  | 大數據科學導論Big Data ScienceCS332(3) |  |  |
|  |  |  |  |  | 物聯網導論Introduction to Internet of ThingsCS347(3) |  |  |
| 程式能力檢定Programming Language Proficiency TestCS425(0) |
| 學期學分小計Credit each semester | 12 | 14 | 13 | 13 | 10 | 6 | 3 | 0 |
| 備註Remarks | 1. 畢業學分：128學分。其中須包含共同必修及通識課程共33學分、系必修科目71學分、系選修科目18學分。Minimum credits required for a B.Sc. degree: 128 credits, including 33 credits from common required courses and general education, 71 credits from departmental required courses, and 18 credits from departmental electives.
2. 「程式能力檢定」課程及格標準：參加「大學程式能力檢定（Collegiate Programming Examination-CPE）」，一次答對2題或累計答對3題。Programming proficiency test requirement: take the Collegiate Programming Examination (CPE) and answer two questions correctly at a time or answer three questions correctly accumulatively.
3. 專業實習與專題製作兩系列課程至少須選修一系列之所有課程：Students must choose between two tracks, Practical Training or Special Project, as well as the series of courses corresponding to each track:
4. 專業實習（校外）共計四門課，包括專業實習（一）、專業實習（二）、專業實習（三）與專業實習（四）。Practical Training (off-campus) is composed of 4 courses: Practical Training I, II, III, and IV.
5. 專題製作（校內）共計兩門課，包括專題製作（一）與專題製作（二）。Special Project (on-campus) is composed of two courses, including Special Project I and II.
6. 下列五大領域課程，至少須選修四領域，且每一領域至少須選修一門。若選修超過一門，多修的課程採計為系選修課程。For the following five areas of study, students are required to choose at least four areas and take at least one course from each of the four areas. When students take more than one course from a specific area, the additional courses will be counted towards departmental electives.
7. 軟體系統：「軟體工程」、「資料庫系統概論」、「開放平台軟體」、「UNIX系統概論」、「雲端運算與服務」。Software System area: Software Engineering, Introduction to Database System, Open Platform Software, Introduction to UNIX System, and Cloud Computing and Services.
8. 計算機系統：「內嵌式系統設計與實習」、「超大型積體電路設計導論」、「微處理機系統設計」、「積體電路設計自動化導論」、「編譯程式概論」。Computer System area: Embedded System Design and Practice, Introduction to VLSI Design, Microprocessor System Design, Introduction to IC Design Automation, and Introduction to Compiler.
9. 網路系統：「計算機網路概論」、「無線網路概論」、「電腦與網路安全概論」、「網路攻防」。Network System area: Introduction to Computer Networks, Introduction to Wireless Internet, Introduction to Computer and Network Security, and Network Security: Attacks and Defenses.
10. 多媒體系統：「多媒體系統概論」、「人機互動設計概論」、「計算機圖學概論」、「影像處理概論」。Multimedia System area: Introduction to Multimedia System, Introduction to Human-Computer Interaction Design, Introduction to Computer Graphics, and Introduction to Image Processing.
11. 人工智慧系統：「人工智慧概論」、「大數據科學導論」、「物聯網導論」、「資料探勘」。Artificial Intelligence System area: Introduction to Artificial Intelligence, Big Data Science, Introduction to Internet of Things, and Data Mining.
12. 擋修規定：Pre-requisites：
13. 「微積分（一）」成績達50分以上，始得修習「微積分（二）」。Students must achieve a minimum score of 50 points in Calculus I before taking Calculus II.
14. 通過「程式能力檢定」，始得修習「專題製作（一）」、「專題製作（二）」、「專業實習（一）」、「專業實習（二）」、「專業實習（三）」、「專業實習（四）」。Students must pass the programming proficiency test requirement before taking Special Project I and II, or Practical Training.
15. 「專業實習（三）」與「專題製作（二）」為終端學習課程。“Practical Training (III)” and “Special Project (II)” are Experiential Learning courses.
16. 有關共同必修及通識教育科目之詳細規定，另依據「元智大學共同必修科目表」之規定辦理。Regarding the details and requirements of general education and common required courses, please refer to the Common Required Course List provided by the University.
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