**元智大學 電機工程學系(甲組) 必修科目表**

**Department of Electrical Engineering(Group A), Yuan Ze University**

**List of Required Courses**

**（105學年度入學新生適用）**

**(Applicable to Students Admitted in Academic Year of 2016)**

105.04.20 一○四學年度第五次教務會議通過

Passed by the 5 th Academic Affairs Meeting, Academic Year 2015, on April 20, 2016

106.01.18 一○五學年度第三次教務會議修訂通過

Amended by the 3rd Academic Affairs Meeting, Academic Year 2016, on January 18, 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

107.05.02 一○六學年度第五次教務會議修訂通過

Amended by the 5th Academic Affairs Meeting, Academic Year 2017, on May 2, 2018

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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） |  |  |  |  |  |  |
| 歷史History（2） |  | 民主倫理與法治Democracy, Ethics and Law（2） |  |  |  |  |  |
| 「英語（一）」及「英語（二）」為基礎課程，採能力分級上課，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。英語檢定(2)、經典五十(2)、服務學習(1)The undergraduate students must complete 12 required credits of foreign language courses as follows:* English (I), (II): 4 credits
* English thematic course: 6 credits
* English Test: 2 credits

English (I) and (II) are 4 credits elementary courses for the freshmen who are grouped on English competence-based to complete within two semesters.English thematic courses are 6- credit of English courses; students are required to obtain 6 credits through 3 different thematic courses for graduation.Fifty Canonized Books: 2 credits.Service-Learning: 1 credit. |
| 全民國防教育軍事訓練課程-國際情勢All-Out Defense Education and Researching of Military- International Situations (0) | 全民國防教育軍事訓練課程-全民國防All-Out Defense Education and Researching of Military- All-Out Defense (0) |  |  |  |  |  |  |
| 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 |
| 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：

|  |  |
| --- | --- |
| (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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| 必修科目(**64**) | 微積分(一)(3) Calculus(I) EE120 | 微積分(二)(3) Calculus(II) EE125 | 電子學(一) (3) Electronics(I) EE205 | 電子學(二) (3) Electronics(II) EE206 | 自動控制(一) (3) Automatic Control(I)EEA351 | 畢業專題製作(2) Graduation ProjectEEA484 |  |  |
| 普通物理(一)(3) General Physics(I)EE121 | 普通物理(二)(3) General Physics(II)EE122 | 工程數學(一)(3) Engineering Mathematics(I) EE203 | 工程數學(二)(3) Engineering Mathematics(II) EE204 |  |  |  |  |
| 計算機概論(3) Introduction to Computer Science EE109 | 程式語言(3) Programming Language EE119 | 電路學(3) Electric Circuits EE242 | 進階電路學 (3) Advance in Electric CircuitsEE243 |  |  |  |  |
|  | 邏輯電路設計(3) Digital Logic DesignEE112 | 資料結構(3) Data Structures EE216 | 電磁學(一) (3) Electromagnetics(I)EE227 |  |  |  |  |
|  |  | 微電腦系統(3) Micro-Computer Systems EE224 | 訊號與系統(3) Signals and Systems EE305 |  |  |  |  |
| 普通物理實驗(一)(1) General Physics Lab.(I)EE123 | 普通物理實驗(二)(1) General Physics Lab.(II)EE124 | 微電腦實驗(1) Micro-Processor Lab.EE386 | 電子電路實驗(二) (1) Electronic Circuits Experiments(II) EE232 | 數位信號處理實驗(1) Digital Signal Processing Lab. EEA387 | 控制實驗(1) Control Laboratory EEA378 |  |  |
|  | 邏輯電路設計實驗(1) Digital Logic Design LaboratoryEE128 | 電子電路實驗(一) (1) Electronic Circuits Experiments(I) EE221 |  |  |  |  |  |
| 學期學分小計Total Credits | 10 | 14 | 17 | 16 | 4 | 3 | 0 | 0 |
| 備註Remarks | 1. 括弧內數字為學分數.

The numbers in parentheses are referred as credit.1. 必修科目計：**97**學分.

The course requirement is 97 credits.1. 電機系(甲組)專業科目至少選修15學分.(包含必選修學分)

The minimum request for electrical engineering(Group A) major is 15 credits.1. 畢業學分：共128學分.(通識教育科目學分只採計至多10學分，超修之學分將不列入畢業學分)

The minimum credits requirement for graduation is 128 credit. (The maximum credits for general education courses is 10, the exceeding credits will not be counted.)1. 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，共同必修超修學分不得列入畢業學分數。

Please refer to Yuan Ze University Common Required Course List for General Education courses information and regulations.1. 本組學生修習電通學院各組專業課程，皆予承認；但必修課程初次修課須在本組修讀始予承認。

Students are permitted to take courses offered in College of Electrical and Communication Engineering, however the first compulsory courses has to be taken in department of electrical engineering(Group A).1. 終端學習課程：畢業專題製作

The experiential learning courses: EEA484 Graduation project.1. 至少須修畢一項本院組制訂之學程(院級學程或組級學程皆可，不包含微學程)，始得畢業，若修課期間已申請「不列入大學畢業學分數」之課程，將不可再申請列為學程課程。

Students need to take at least one course package offered by the department or the college to fulfill the graduation requirement.九、修習普通物理實驗(一)／(二)、電子電路實驗(一)／(二)等4門課程者，必須通過該課程所規定之儀器檢定項目。Those who take courses of EE123 General Physics Lab.(I), EE124 General Physics Lab.(II), EE221 Electronic Circuits Experiments(I), or EE232 Electronic Circuits Experiments(II) are required to pass the corresponding certification exams. |

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**元智大學電機工程學系(甲組) 選修科目表**

**Department of Electrical Engineering(Group A), Yuan Ze University**

**List of Elective Courses**

**（105學年度入學新生適用）**

**(Applicable to Students Admitted in Academic Year of 2016)**

105.04.20 一○四學年度第五次教務會議通過

Passed by the 5th Academic Affairs Meeting, Academic Year 2015, on April 20, 2016

105.06.22 一○四學年度第六次教務會議修訂通過

Amended by the 6th Academic Affairs Meeting, Academic Year 2015, on June 22, 2016

105.11.09 一○五學年度第二次教務會議修訂通過

Amended by the 2nd Academic Affairs Meeting, Academic Year 2016, on November 09, 2016

106.11.15 一○六學年度第二次教務會議修訂通過

Amended by the 2nd Academic Affairs Meeting, Academic Year 2017, on November 15, 2017

107.05.02 一○六學年度第五次教務會議修訂通過

Amended by the 5th Academic Affairs Meeting, Academic Year 2017, on May 2, 2018

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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 |
| 選修科目Department Elective | 線性代數Linear AlgebraEE126 |  |  |  | 工程數學(三) EnginEEAring Mathematics(III) EEA328 | 計算機組織(一) Computer Structure(I) EEA335 | 高階數位IC設計High-Level IC Design EEA385 | 高科技產業介紹Introduction of High-Technology Industries EEA451 |
|  |  |  |  | 電子學(三) Electronics(III)EEA301 | 自動控制(二) Automatic Control(II) EEA353 | 智慧控制概論Introduction of Intelligent Control EEA379 |  |
|  |  |  |  | 電磁學(二) Electromagnetics(II) EEA303 | 專題與實習(一) (2) Field Study(I) EEA400 | 專題與實習(二)(2) Field Study(II) EEA474 | 電腦網路Computer NetworkEEA464 |
|  |  |  |  |  | 半導體元件物理Semiconductor Devices Physics EEA391 | 電腦輔助控制系統設計Computer-Aided Design of Control SystemEEA384 | 機器人實務Practice of RoboticsEEA477 |
|  |  |  |  | 超大型積體電路設計導論Introduction to VLSI EEA350 | 數位系統設計Numerical Analysis EEA339 | 機器人概論Fundamentals of Robotics EEA476 | 節能技術與實務Implementation of Energy Saving Technology EEA486 |
|  |  |  |  | 數位信號處理概論(2) Introduction to Digital Signal Processing EEA244 | 多媒體概論Introduction to Multimedia Information SystemEEA333 | 智慧電網實驗(2) Smart Grid Experiments EEA480 |  |
|  |  |  |  | 電機專題(2) Electrical TopicsEEA478 | 通訊系統Communication SystemsEEA313 | 電源轉換器設計實驗(2) Power Converter Design Lab.EEA482 |  |
|  |  |  |  | 工程機率Probability for EnginEEArsEEA223 | 電力系統Power SystemsEEA317 | 工業配電Electrical Power Distribution for IndustryEEA485 |  |
|  |  |  |  | 電機機械Electrical MachineryEEA323 | 人機互動概論Human-Computer Interaction EEA479 |  |  |
|  |  |  |  | 行動終端之相機Apps程式開發EEA481 | 電力電子Power Electronics EEA344 | 物聯網應用技術與實作(二)IoT Ecosystem and applications(II)EEA495 |  |
|  |  |  |  | 智慧系統設計與開發Design and Development of Smart Systems EEA488 | 微感測器及感測電路設計Design on Micro-Sensor and Sensor Circuits EEA483 |  |  |
|  |  |  |  | 生物醫學工程概論Biomedical EnginEEAringEEA489 | 次系統實作System Design and ImplementationEEA487 |  |  |
|  |  |  |  | 工程應用生理學BioenginEEAring PhysiologyEEA492 | 醫學輔助系統Medical DevicesEEA490 |  |  |
|  |  |  |  | 無人載具控制Control of Unmanned VehiclesEEA491 | 醫學電機概論Introduction to Medical Electrical EnginEEAringEEA493 |  |  |
|  |  |  |  |  | 物聯網應用技術與實作(一)IoT Ecosystem and applications( I)EEA494 |  |  |
| 備註Remarks | 1. 必選修課程：線性代數、電磁學(二)、電機專題(2)、數位信號處理概論(2)

Course requirement: Linear Algebra、Electromagnetics (II)、Electrical Topics (2)、Introduction to Digital Signal Processing (2)1. 未特別註明學分數之科目皆為3學分

Those courses without specific marking are worth 3 credit hours.1. 研究所基礎專業課程，大學部大三以上學生可以修習，若超過選課人數，則以研究生優先選課。可選修科目如下

控制組：EE505/EEA505線性系統理論、EE532/EEA532模糊控制、EE600/EEA600類神經網路、EE636/EEA636信號偵測、EE641/EEA641汽車電子、EE661/EEA661進階電力系統、EE662/EEA662輸配電系統、EE663/EEA663配電系統模擬、EE668/EEA668電源轉換器設計、EE669/EEA669多目標控制。數位科技組：EE507/EEA507影像處理、EE647/EEA647家庭網路傳輸標準、EE655/EEA655高等計算機數學、EE658/EEA658次世代網路專題與應用實作。電子組：EE531/EEA531VLSI信號處理、EE580/EEA580類比積體電路設計、EE588/EEA588數位VLSI設計。Courses of master’s level are opened to junior and senior year of undergraduates. When the number of registrations students exceeds the capacity of the class, the priority will be given to the graduate student.Control Group：EE505/EEA505 Linear System Theory,EE532/EEA532 Fuzzy Control,EE600/EEA600 Neural Network,EE636/EEA636 Signal Detection,EE641/EEA641 Vechicular Electronic System,EE661/EEA661 Advanced Power Systems,EE662/EEA662 Electric Power Transmission and Distribution Systems,EE663/EEA663 Modeling and Simulation of Power Distribution Systems,EE668/EEA668 Power Conversion Design,EE669/EEA669 Multiobjective Control.Digital Technology Group：EE507/EEA507 Image Processing,EE647/EEA647 Transmission Standards of Digital Home Network,EE655/EEA655 Advanced Computer Mathematics,EE658/EEA658 Special topics on next generation network and network implementation.Electronic Group：EE531/EEA531 VLSI Signal Processing,EE580/EEA580 Analog IC Design,EE588/EEA588 Digital VLSI Design. |

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