**元智大學 機械工程學系 必修科目表**

**Department of Mechanical Engineering at Yuan Ze University**

**List of Required Courses for the Undergraduate Program**

**（106學年度入學新生適用Academic Year 2017）**

106.04.26 一○五學年度第五次教務會議通過

Passed 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Academic Year學期Semester科目Subject | 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 Course & 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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| 院College | 選課規定Course requirements |
| 工學院College of 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Department Compulsory (74**)** | 微積分CalculusME120(3) | 微積分CalculusME120(3) | 工程數學Engineering MathematicsME201(3) | 工程數學Engineering MathematicsME201(3) | 機械設計Mechanical DesignME301(3) | 機械設計Mechanical DesignME301(3) | 專業實習課程3選1註7Internship Courses(Remarks #7) |   |
| 基礎程式設計實驗(一)ME123(1) | 基礎程式設計實驗(二)ME124(1) | 熱力學ThermodynamicsME209(3) | 熱力學ThermodynamicsME209(3) | 電路及電子學Introduction to Electric Circuits and Electronics ME224(3) | 自動控制Automatic ControlME335(3) |   |
| 工程圖學Engineering DrawingME119(2) | 工程材料Engineering MaterialsME115(3) | 機械畫Mechanical DrawingME475(2) | 材料力學Mechanics of MaterialsME309(3) | 流體力學Fluid MechanicsME305(3) | 熱傳學Heat TransferME322(3) |  |   |
| 機械工程概論Introduction to Mechanical EngineeringME121(3) | 應用力學-靜力Applied Mechanics StaticsME108(3) | 機械製造Introduction to Manufacturing ProcessesME303(3) | (2選1課程)近代生物學導論Introduction to Modern Biology ME114(3)or工業應用化學Applied Chemistry in Industry ME229(3) | 應用力學-動力Applied Mechanics DynamicsME214(3) | 機動學MechanismsME207(3) |  |   |
| 工場實習Workshop PracticeME215(1) |  工場實習Workshop PracticeME215(1) | 普通物理General PhysicsME117(3) |  |  |  |   |   |
|  |  | 5選3實驗課程實驗(一)~(五)各1學分Experiments from (I) to (V), at least choose three out of the five courses. |  |  |  |
| 學期學分小計Credit each semester | 10 | 11 | 15 | 13 | 13 | 12 | 0 | 0 |
| 備註Remarks | 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。

Please refer to Yuan Ze University Common Required Course List for General Education courses information and regulations.1. 括弧內數字為學分數。Symbol “( )” shows the credits.
2. 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 maximum credits for general education courses is 10, the exceeding credits will not be counted.1. 本系同學總共必須修滿130學分方可畢業，包括共同必修及通識課程共33學分、本系必修74學分，其餘選修23學分（外系選修至多承認15學分）。

Student must take 130 credits in total for graduation, include Required Common Courses and General Education courses (33), Department Required courses (74), and Department Elective courses (23). (Outside the Department of elective up to recognize the (15) credits)1. 實驗課程需5選3。【實驗(一)：材料與固力(ME348)；實驗(二)：流力與熱傳(ME349)；實驗(三)：生醫機械系統(ME350)；實驗(四)：量測與儀器(ME351)；實驗(五)：綠色能源(ME352)】。

Experiments from (I) to (V), please at least choose three out of the five courses. (Exp (I) : Materials and Solid Mechanics ME348(1)；Exp (II) : Fluid Mechanics and Heat Transfer ME349(1)；Exp (III) : Biomechanical Systems ME350(1)；Exp (IV) : Measurement and Instrumentation ME351(1)；Exp (V) : Green Energy ME352(1) ).1. 2選1必修：近代生物學導論(ME114)、工業應用化學(ME229)。

For two courses of “Introduction to Modern Biology ME114(3)” and “Applied Chemistry in Industry ME229(3)”, please choose one course for the required courses credits.1. 專業實習課程需3選1。【暑期專業實習(ME477, 0)、學士論文(ME479, 0)、半年專業實習(ME453, 6)，不限年級皆可修課】。

For three courses of “Summer Internship ME477(0) ”; “Bachelor Thesis ME479(0)” and “Advanced Field Study ME453(6)”, please choose one of the three courses for the required courses credits. It’s not required for a grade.1. 應用力學-靜力(ME108)未達60分則擋修應用力學-動力(ME214)。

For “Applied Mechanics Statics ME108(3)”, if your scores is less than 60 points, you are not allowed to register “Applied Mechanics Dynamics ME214(3)”.1. 三年級下學期「機械設計」(ME301)為本系終端學習課程。

Mechanical Design ME301(3) is a experiential learning course. |

AA-CP-04-CF02 (1.3版)／102.04.19修訂

**元智大學 機械工程學系 選修科目表**

**Department of Mechanical Engineering at Yuan Ze University**

**List of Elective Courses for the Undergraduate Program**

**（106學年度入學新生適用Academic Year 2017）**

106.04.26 一○五學年度第五次教務會議通過

Passed 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

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

108.05.01 一○七學年度第六次教務會議修訂通過

Amended by the 6th Academic Affairs Meeting, Academic Year 2018, on May 01, 2019

109.11.11 一○九學年度第二次教務會議修訂通過

Amended by the 2nd Academic Affairs Meeting, Academic Year 2020, on November 11, 2020

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| 學年Academic Year學期Semester科目Subject | 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 |
| 系選修科目Elective Course |   |   | 材料科學Material ScienceME205(2)  |   | 數值分析Numerical Analysis ME345 (3)  | 電腦輔助分析Computer-Aided Engineering AnalysisME318(3) | 感測器原理與應用 Sensor Principles and ApplicationsME385(3) | 熱處理學與表面改質Heat Treatment and Surface ModificationME327(3) |
|   |   |  |   | 綠色能源專題實作Projects for Green EnergyME387(3)  | 科技創業專題Entrepreneurship of Technology InnovationME321(2) | 機械振動Mechanical Vibrations ME407(3) | 工廠管理Production/Operation ManagementME396(3) |
|   |   |   |   | 藝術與設計創作(一) Art & Design Studio(I)ME388(3) | 線性代數Linear Algebra ME342(3) | 可程式控制Sequential Programmable ControlME415(3) | 機電整合Mechatronics IntegrationME411(3) |
|   |   |   |   | 信號處理與系統鑑別Signal Processing and System Identification ME393(3) | 電池技術Battery TechnologyＭE347(3) | 物理冶金學Physical MetallurgyME424(3) | 伺服控制系統Servo ControlME422(3) |
|  |  |  |  | 電腦機械繪圖Computer-Aided DraftingME444(3)  | 機械系統分析Analysis of Mechanical System ME386(3) | 精密機械與量測Precision Engineering and MeasurementME427(3) | 內燃機學Internal Combustion EngineME448(3)  |
|   |   |   |   | 數值控制加工CNC MachiningME324(3) | 汽車學Automotive EngineeringME470(3) | 自動化機械設計Machine Design PracticeME441(3) | 空氣動力學Aerodynamics ME457(3) |
|  |  |  |  |  |  | 流體機械Fluid MachineryME442(3) | 能源與環境Energy and EnvironmentME461(3) |
|   |   |   |   |  |  | 科技英文Technical English ME452(3) | 電子構裝製程與設備Process and Equipment for Electronic Packaging ME462(3) |
|  |  |  |  |  |  | 半年專業實習Advanced Field Study ME453(6) | 材料破壞分析Material Failure AnalysisME463(3) |
|   |   |   |   |   |  | 能源工程Energy Science and TechnologyME454 (3) | 微感應器設計與製造The Design and Manufacturing Processes of Micro SensorsME465(3) |
|   |   |   |   |   |  | 微機電製程與設備概論Introduction of the Micro Electro Mechanical Systems: Processes and FacilitiesME471(3) | 應力分析實務Practice of Stress Analysis ME476(3) |
|  |  |  |  |  |  | 專利分析Patent AnalysisME478(3) | 太陽能電池Solar CellME486(3) |
|   |   |   |   |  |  | 材料之選擇與應用The Selection and Application of MaterialsME480(3) | 老人福祉科技產業學堂專題講座Gerontechnplogy Industry School SeminarME491(1) |
|   |   |   |   |   |  | 燃料電池概論Introduction to Fuel Cell TechnologyME483(3) | 人因工程設計方法與實務Ergonomics in Mechanical DesignME492(3) |
|   |   |   |   |   |   | 材料機械行為Mechanical Behavior of Materials ME493(3) | 非傳統加工Non-Traditional Manufacturing ProcessesME406(3) |
|   |   |   |   |   |   | 氫能概論Introduction to Hydrogen EnergyME495(3) |  |
| 備註Remarks |  |

AA-CP-04-CF05 (1.2版)／101.11.15修訂