**元智大學 機械工程學系 必修科目表**

**（105學年度入學新生適用）**

**List of Required Courses for YZU Mechanical Engineering Department Undergraduate**

**（Applicable to Newly-Admitted Students of 2016）**

105.04.20 一○四學年度第五次教務會議通過

Approved by the 5th 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

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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) |  |  |  |  |  |  |
| 歷史Contemporary History of China (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，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）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.English Testing（2）、Fifty Canonized Books（2）、Service Learning（1） |
| 全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-國際情勢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 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Required Course (78**)** | 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) |   |
| 資訊概論Introduction to Information ScienceME122(3) | 工程材料Engineering MaterialsME115(3) | 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) | 程式設計Computer ProgrammingME116(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Semester Credits | 12 | 13 | 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。

Common Majors and General Education rules are related to「Common Majors Courses of YZU」policies.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78學分，其餘選修19學分（外系選修至多承認12學分，外籍生選修工程學院之系所課程得採計為系選修）。Student must take 130 credits in total for graduation, include Required Common Courses and General Education courses (33), Department Required courses (78), and Department Elective courses (19). (Outside the Department of elective up to recognize the (12) credits; foreign students are able to take elective courses from either the ME department or any other YZU department in the College of Engineering)
2. 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. |

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**元智大學機械工程學系 選修科目表**

**（105學年度入學新生適用）**

**List of Elective Courses for YZU Mechanical Engineering Department Undergraduate**

**（Applicable to Newly-Admitted Students 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

106.04.26 一○五學年度第五次教務會議修訂通過

Amended 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

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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)  | 生醫機械工程Biomechanical Mechanical EngineeringME304(3) | 機械振動Mechanical Vibrations ME407(3) | 熱處理學與表面改質Heat Treatment and Surface ModificationME327(3) |
|   |   | 智慧生產概論 Introduction to Intelligent ProductionEG201(3) |   | 綠色能源專題實作Projects for Green EnergyME387(3)  | 電腦輔助分析Computer-Aided Engineering AnalysisME318(3) | 可程式控制Sequential Programmable ControlME415(3) | 工廠管理Production/Operation ManagementME396(3) |
|   |   |   |   | 藝術與設計創作(一) Art & Design Studio(I)ME388(3) | 科技創業專題Entrepreneurship of Technology InnovationME321(2) | 物理冶金學Physical MetallurgyME424(3) | 冷凍空調Refrigerating and Air-conditioningME402(3) |
|   |   |   |   | 奈米科技概論Introduction to NanotechnologyME390(3) | 數值控制加工CNC MachiningME324(3) | 精密機械與量測Precision Engineering and MeasurementME427(3) | 非傳統加工Non-Traditional Manufacturing ProcessesME406(3) |
|   |   |   |   | 信號處理與系統鑑別Signal Processing and System Identification ME393(3) | 微電腦基礎與應用Fundamental and Applications of Micro-ComputersME338(3) | 創新思考與產品設計Innovative Thinking and Product DesignME431(3) | 機電整合Mechatronics IntegrationME411(3) |
|   |   |   |   | 電腦機械繪圖Computer-Aided DraftingME444(3)  | 藝術與設計創作(二) Art & Design Studio(II)ME339(3) | 自動化機械設計Machine Design PracticeME441(3) | 伺服控制系統Servo ControlME422(3) |
|   |   |   |   |   | 線性代數Linear Algebra ME342(3) | 空氣污染學Air PollutionME445(3) | 內燃機學Internal Combustion EngineME448(3)  |
|   |   |   |   |   | 電池技術Battery TechnologyＭE347(3) | 自動化機械設計實務Machinery Design Practice(II)ME446(3) | 空氣動力學Aerodynamics ME457(3) |
|  |  |  |  |  | 機械系統分析Analysis of Mechanical System ME386(3) | 科技英文Technical English ME452(3) | 能源與環境Energy and EnvironmentME461(3) |
|   |   |   |   |  | 生醫光機電工程專題討論Biomedical Opto-Mechatronic Engineering Program(BOMEP) SeminarME389(1) | 半年專業實習Advanced Field Study ME453(6) | 電子構裝製程與設備Process and Equipment for Electronic Packaging ME462(3) |
|   |   |   |   |   | 燃料電池實驗Fuel Cell Experiments ME391(3) | 能源工程Energy Science and TechnologyME454 (3) | 材料破壞分析Material Failure AnalysisME463(3) |
|   |   |   |   |   | 汽車學Automotive EngineeringME470(3) | 熱交換器設計原理及設計Principles and Design of Heat ExchangerME460(3) | 微感應器設計與製造The Design and Manufacturing Processes of Micro SensorsME465(3) |
|   |   |   |   |   |  | 軌道機電系統概論Introduction to E&M Systems of Rolling Stock EngineeringME464(3) | 應力分析實務Practice of Stress Analysis ME476(3) |
|   |   |   |   |   |   | 微機電製程與設備概論Introduction of the Micro Electro Mechanical Systems: Processes and FacilitiesME471(3) | 電子電路應用實驗Applied Experiments for Electronics and Electric CircuitsME482(1) |
|   |   |   |   |   |   | 專利分析Patent AnalysisME478(3) | 工程統計Engineering StatisticsME485(3) |
|   |   |   |   |   |   | 材料之選擇與應用The Selection and Application of MaterialsME480(3) | 太陽能電池Solar CellME486(3) |
|   |   |   |   |   |   | 燃料電池概論Introduction to Fuel Cell TechnologyME483(3) | 老人福祉科技產業學堂專題講座Gerontechnplogy Industry School SeminarME491(1) |
|   |   |   |   |   |   | 材料機械行為Mechanical Behavior of Materials ME493(3) | 人因工程設計方法與實務Ergonomics in Mechanical DesignME492(3) |
|   |   |   |   |   |   | 綠色化學Green Chemistry ME494(3) |  |
|  |  |  |  |  |  | 氫能概論Introduction to Hydrogen EnergyME495(3) |  |
|  |  |  |  |  |  | 感測器原理與應用 Sensor Principles and ApplicationsME385(3) |  |
|  |  |  |  |  |  | 模具設計與模擬分析Mold Design and Simulation AnalysisME414(3) |  |
|  |  |  |  |  |  | 流體機械Fluid MachineryME442(3) |  |
|  |  |  |  |  |  | 工程管理Engineering ManagementCH440(3) |  |
|  |  |  |  |  |  | 奈米科技Nanotechnologies CH460(3) |  |
| 備註Remarks | 外籍生選修工程學院之系所課程得採計為系選修。Foreign students are able to take elective courses from either the ME department or any other YZU department in the College of Engineering. |

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