**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：   |  |  | | --- | --- | | 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. | | | | | | | | | | |
| 必  修  科  目  Required Course  (78**)** | 微積分  Calculus  ME120(3) | 微積分  Calculus  ME120(3) | | 工程數學  Engineering Mathematics  ME201(3) | 工程數學  Engineering Mathematics  ME201(3) | | 機械設計  Mechanical Design  ME301(3) | 機械設計  Mechanical Design  ME301(3) | 專業實習課程3選1註7  Internship Courses  (Remarks #7) |  |
| 資訊概論  Introduction to Information Science  ME122(3) | 工程材料  Engineering Materials  ME115(3) | | 熱力學  Thermodynamics  ME209(3) | 熱力學  Thermodynamics  ME209(3) | | 電路及電子學  Introduction to Electric Circuits and Electronics ME224(3) | 自動控制  Automatic Control  ME335(3) |  |
| 工程圖學  Engineering Drawing  ME119(2) | 程式設計  Computer Programming  ME116(3) | | 機械畫  Mechanical Drawing  ME475(2) | 材料力學  Mechanics of Materials  ME309(3) | | 流體力學  Fluid Mechanics  ME305(3) | 熱傳學  Heat Transfer  ME322(3) |  |  |
| 機械工程概論  Introduction to Mechanical Engineering  ME121(3) | 應用力學-靜力  Applied Mechanics Statics  ME108(3) | | 機械製造  Introduction to Manufacturing Processes  ME303(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 Dynamics  ME214(3) | 機動學  Mechanisms  ME207(3) |  |  |
| 工場實習  Workshop Practice  ME215(1) | 工場實習  Workshop Practice  ME215(1) | | 普通物理  General Physics  ME117(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 Science  ME205(2) |  | 數值分析  Numerical Analysis ME345 (3) | 生醫機械工程  Biomechanical Mechanical Engineering  ME304(3) | 機械振動  Mechanical Vibrations ME407(3) | 熱處理學與  表面改質  Heat Treatment and Surface Modification  ME327(3) |
|  |  | 智慧生產概論   Introduction to Intelligent Production  EG201(3) |  | 綠色能源專題實作  Projects for Green Energy  ME387(3) | 電腦輔助分析  Computer-Aided Engineering Analysis  ME318(3) | 可程式控制  Sequential Programmable Control  ME415(3) | 工廠管理  Production/Operation Management  ME396(3) |
|  |  |  |  | 藝術與設計創作(一) Art & Design Studio(I)  ME388(3) | 科技創業專題  Entrepreneurship of Technology Innovation  ME321(2) | 物理冶金學  Physical Metallurgy  ME424(3) | 冷凍空調  Refrigerating and Air-conditioning  ME402(3) |
|  |  |  |  | 奈米科技概論  Introduction to Nanotechnology  ME390(3) | 數值控制加工  CNC Machining  ME324(3) | 精密機械與量測Precision Engineering and Measurement  ME427(3) | 非傳統加工  Non-Traditional Manufacturing Processes  ME406(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-Computers  ME338(3) | 創新思考與  產品設計  Innovative Thinking and Product Design  ME431(3) | 機電整合  Mechatronics Integration  ME411(3) |
|  |  |  |  | 電腦機械繪圖  Computer-Aided Drafting  ME444(3) | 藝術與設計創作(二) Art & Design Studio(II)  ME339(3) | 自動化機械設計  Machine Design Practice  ME441(3) | 伺服控制系統Servo Control  ME422(3) |
|  |  |  |  |  | 線性代數  Linear Algebra ME342(3) | 空氣污染學  Air Pollution  ME445(3) | 內燃機學  Internal Combustion Engine  ME448(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 Environment  ME461(3) |
|  |  |  |  |  | 生醫光機電工程專題討論Biomedical Opto-Mechatronic Engineering Program(BOMEP) Seminar  ME389(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 Technology  ME454 (3) | 材料破壞分析  Material Failure Analysis  ME463(3) |
|  |  |  |  |  | 汽車學  Automotive Engineering  ME470(3) | 熱交換器設計原理及設計  Principles and Design of Heat Exchanger  ME460(3) | 微感應器設計與製造The Design and Manufacturing Processes of Micro Sensors  ME465(3) |
|  |  |  |  |  |  | 軌道機電系統概論Introduction to E&M Systems of Rolling Stock Engineering  ME464(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 Facilities  ME471(3) | 電子電路應用實驗  Applied Experiments for Electronics and Electric Circuits  ME482(1) |
|  |  |  |  |  |  | 專利分析  Patent Analysis  ME478(3) | 工程統計  Engineering Statistics  ME485(3) |
|  |  |  |  |  |  | 材料之選擇與應用The Selection and Application of Materials  ME480(3) | 太陽能電池  Solar Cell  ME486(3) |
|  |  |  |  |  |  | 燃料電池概論Introduction to Fuel Cell Technology  ME483(3) | 老人福祉科技產業學堂專題講座Gerontechnplogy Industry School Seminar  ME491(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 Design  ME492(3) |
|  |  |  |  |  |  | 綠色化學  Green Chemistry ME494(3) |  |
|  |  |  |  |  |  | 氫能概論  Introduction to Hydrogen Energy  ME495(3) |  |
|  |  |  |  |  |  | 感測器原理與應用   Sensor Principles and Applications  ME385(3) |  |
|  |  |  |  |  |  | 模具設計與模擬分析Mold Design and Simulation Analysis  ME414(3) |  |
|  |  |  |  |  |  | 流體機械  Fluid Machinery  ME442(3) |  |
|  |  |  |  |  |  | 工程管理  Engineering Management  CH440(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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