**元智大學 機械工程學系 必修科目表**

**（113學年度入學新生適用）**

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

**List of Required Courses**

 **(Applicable to Students Admitted in Academic Year of 2024)**

113.05.01 一一二學年度第八次教務會議通過

Passed by the 8th Academic Affairs Meeting, Academic Year 2023, on May 01, 2024

113.06.05 一一二學年度第九次教務會議修訂通過

Amended by the 9th Academic Affairs Meeting, Academic Year 2023, on June 05, 2024

113.07.10 一一二學年度第十次教務會議修訂通過

Amended by the 10th Academic Affairs Meeting, Academic Year 2023, on July 10, 2024

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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Common Compulsory（17） | 中文閱讀思辨與表達（一） Chinese Reading, Critical Thinking, and Expression（I）（2） | 中文閱讀思辨與表達（二）Chinese Reading, Critical Thinking, and Expression （II）（2） |  |  |  |  |  |  |
| 英語（一）English （I）（2） | 英語（二）English （II）（2） |  |  |  |  |  |  |
| 1. 外語課程應修習 10 學分。
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。
3. 除了「英語（一）」及「英語（二）」外，畢業前應修畢二個不同主題式英語課程，共計 4 學分。
4. 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」（EL260）。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。
5. 另開設「英語檢定」（EL160）計一學期2學分，「英語檢定」之修課限制與注意事項，請參照「通識外語『英語檢定』修課規定」，並由通識教學部公佈後施行。
6. 外國學生改修華語須經國際語言文化中心審核通過始可改修華語課程 10 學分，其華語課程 10 學分應含「華語檢定」2 學分，「華語檢定」修課限制與注意事項，請參照「通識外語『英語檢定』修課規定」及「元智大學外籍生華語學分抵免規定」。
7. 凡本校大學部外國學生修習「華語（一）」或「華語（二）」任一課程成績未達60分，不得修習「華語（三）」、「華語（四）」。若修習「華語（三）」、「華語（四）」任一課程成績未達60分，不得修習「華語檢定」（EL375）。
8. The undergraduate students must complete 10 required credits of foreign language courses.
9. English （I） & （II） for the total 4 credits: English （I） and （II） are 4 credits elementary courses for the freshmen who are grouped on English competence; to complete within two semesters.
10. English thematic course for the total 4 credits: English thematic courses are 4-credit English courses; students are required to obtain 4 credits through 2 different thematic courses for graduation.
11. Students who do not reach the 350-point threshold of TOEIC Mock Exam in the end of the freshman year must take English Testing （EL260） course. Students will fail the course if they do not score higher than 350 points of TOEIC Mock Exam by the end of the course, and must repeatedly take the course until they can score higher than 350 points.
12. “English Testing” （EL160） is a 2-credit course: For the requirements of registering “English Testing”, please refer to The Regulation for Registering English Test announced and implemented by the College of General Education.
13. Foreign students need approval by ILCC for taking 10 credits of Mandarin Chinese courses as alternative courses of English. The 10 credits in Mandarin Chinese courses must include 2 credits for “Chinese Proficiency Test”. For the specific restrictions and considerations for taking the “Chinese Proficiency Test”, please refer to the 'General Education Foreign Language “English Proficiency Exam” Course Requirements' and 'Yuan Ze University Regulations for Exempting the Mandarin Chinese as a Foreign Language Credit ' for more details.
14. The undergraduate foreign students must pass Mandarin Chinese （I） and （II） before taking Mandarin Chinese （III） and （IV）. Students must pass Mandarin Chinese （III） and （IV） before taking 'Chinese Proficiency Test' （EL375）.

 **英語檢定English Testing （2）**、經典選讀A Guide to Classics （2）、服務學習Service Learning （1） |
| 體育Physical Education（0） | 體育Physical Education（0） | 興趣選項體育optional physical education（0） | 興趣選項體育optional physical education（0） |  |  |  |  |
| 大學部必須修習4學期體育課程；其中2學期為大一體育課程原班級上課，另2學期為興趣選項體育課程。The undergraduate students must attend the physical education course for 4 semesters; 2 semesters for the freshman physical education courses, the other two semesters for the optional physical education courses. |
| 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。學生須於四大領域中各選修2學分課程，共計8學分。General Education program comprises four categories：Humanities, Natural Science, Social Science and Life Science. Students are required to take a 2-credit course from each category to get 8 credits before graduation.通識跨域課程General Education Interdisciplinary Course：此2學分學生可自由於通識講座課程、微課自主學習或在地多元文化課群中選課。惟外籍生可於四大領域中選課。Students can select the 2 credits from a General Education Lecture course, Micro Credit courses, Self-Study courses, or Local-Multicultural courses. Only foreign students are required to take a 2-credit course from the four categories. |
| 院必修科目CollegeCompulsory（4） | 程式語言共4學分，依各院修課規則辦理。The Fundamental Computer Programming has 4 credits in total, which is subject to the rules of each college. |
| 系必修科目Department Compulsory （63） | 微積分(一)Calculus (I)ME105(3) | 微積分(二)Calculus (II)ME107(3) | 工程數學(一)Engineering Mathematics (I)ME202(3) | 工程數學(二)Engineering Mathematics (II)ME204(3) | 機械設計(一)Mechanical Design (I)ME306(3) | 機械設計(二)Mechanical Design (II)ME310(3) |  |  |
| 基礎程式設計實驗(一)Computer Programming Lab. (I) ME123(1) | 基礎程式設計實驗(二)Computer Programming Lab. (II) ME124(1) | 熱力學(一)Thermodynamics (I)ME206(3) | 機動學MechanismsME207(3) | 流體力學Fluid MechanicsME305(3) | 熱傳學Heat TransferME322(3) |  |  |
| 工程圖學Engineering DrawingME119(2) | 工程材料Engineering MaterialsME115(3) | 應用力學-動力Applied Mechanics DynamicsME214(3) | 自動控制Automatic ControlME335(3) | 機械工程實驗 (一)Mechanical Engineering Lab.(I)ME307(1) | 機械工程實驗(二)Mechanical Engineering Lab. (II)ME308(1) |  |  |
| 機械工程概論Introduction to Mechanical EngineeringME127(1) | 材料力學Mechanics of MaterialsME309(3) | 機械製造Introduction to Manufacturing ProcessesME303(3) |  |  | 專題研究(一)Research Project ME311(1) |  |  |
| 工場實習(一)Workshop Practice (I)ME125(1) | 工場實習(二)Workshop Practice (II)ME126(1) | 電路及電子學Introduction to Electric Circuits and Electronics ME224(3) |  |  |  |  |  |
| 應用力學-靜力Applied Mechanics StaticsME128(2) | 普通物理General PhysicsME117(3) |  |  |  |  |  |  |
| 學期學分小計Credit each semester | 10 | 14 | 15 | 9 | 7 | 8 |  |  |
| 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. 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 128學分及完成任一個跨領域學程方可畢業，包括共同必修及通識課程共27學分、院必修程式語言課程共4學分、本系必修63學分，選修34學分（外系選修至多承認17學分，與他系合作之學程，依學程規定承認最高學分）。

Student of Dept. of Ad must take 128 credits and complete one of the Interdisciplinary Curricula for graduation, include Required Common Courses and General Education courses（27）credits, College Compulsory Courses Fundamental Computer Programming（4）credits, Department Compulsory courses（63）credits, and Department Elective courses（34）credits. (Outside the Department of elective up to recognize the （17）credits, and the cooperation courses with other departments, according to the provisions of the highest recognition of credit）1. 本系必修課程初次修課須在本系修讀始予承認。

The first compulsory courses have to be taken in department of Mechanical Engineering.1. 三年級下學期「機械設計(二)」(ME310)為本系終端學習課程。

Mechanical Design (II) ME310(3) is an experiential learning course.1. 「ME306機械設計(一)」課程為本系必修「議題導向實作專題課程」3學分。

「ME306 Mechanical Design (I) is a compulsory three-credit course of "Topic and Implementation-oriented courses"1. 「數位應用相關課程｣：畢業前須於本系或至外系修習至少2門數位應用相關課程【本系開設之課程包括機械畫(ME475)、電腦輔助分析(ME318)、電腦機械繪圖(ME444)、數值分析(ME345)、應力分析實務(ME476)】

Mechanical Drawing ME475(2)**,** Computer-Aided Engineering Analysis ME318(3), Computer-Aided Drafting ME444(3), Numerical Analysis ME345 (3) **,** Practice of Stress Analysis ME476(3) **,** are courses of 'digital application courses'. Students are required to take at least two 'digital application courses'. (Student may take 'digital application courses' from another department.)1. 為增進學生英文能力，鼓勵選修英語授課課程（含英專班），其修習之課程科目及學分數之認抵需依學系規定辦理。

To improve students’English, we encourage students to take the courses in English（including English Bachelor）, which courses and credits waiver and transference should be standardized by each department.1. 自106學年度起軍訓課程由必修改為選修，該學分納入當學期修課學分數計算，但不納入畢業總學分計算。

The military education courses are no longer compulsory starting the 106 academic year. The military education courses will not be accumulated to the graduation requirements, but they can be counted as taken credits for each semester.1. 修習碩士班課程以大三以上學生為限，且不得修習碩士在職專班課程。

Master's degree courses are limited to students in their third year or above, and students are not allowed to take courses from the Executive Master program. |

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**元智大學 機械工程學系 選修科目表**

**（113學年度入學新生適用）**

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

**List of Elective Courses**

**(Applicable to Students Admitted in Academic Year of 2024)**

113.05.01 一一二學年度第八次教務會議通過

Passed by the 8th Academic Affairs Meeting, Academic Year 2023, on May 01, 2024

113.11.20 一一三學年度第二次教務會議修訂通過

Amended by the 2nd Academic Affairs Meeting, Academic Year 2024, on November 20, 2024

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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 |  | 機械畫Mechanical DrawingME475(2) | 材料科學Material ScienceME205(2) | 熱力學(二)Thermodynamics (II)ME210(3) | 近代生物學導論Introduction to Modern Biology ME114(3) | 工業應用化學Applied Chemistry in Industry ME229(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) |
|  |  |  |  | 數值控制加工CNC MachiningME324(3) | 電腦輔助分析Computer-Aided Engineering AnalysisME318(3) | 機械振動Mechanical Vibrations ME407(3) | 人工智慧概論Introduction to Artificial IntelligenceME384(3) |
|  |  |  |  | 數值分析Numerical Analysis ME345 (3) | 科技創業專題Entrepreneurship of Technology InnovationME321(2) | 可程式控制Sequential Programmable ControlME415(3) | 機械系統分析Analysis of Mechanical System ME386(3) |
|  |  |  |  | 綠色能源專題實作Projects for Green EnergyME387(3) | 線性代數Linear Algebra ME342(3) | 物理冶金學Physical MetallurgyME424(3) | 工廠管理Production/Operation ManagementME396(3) |
|  |  |  |  | 藝術與設計創作(一) Art & Design Studio(I)ME388(3) | 電池技術Battery Technology E347(3) | 精密機械與量測Precision Engineering and MeasurementME427(3) | 機電整合Mechatronics IntegrationME411(3) |
|  |  |  |  | 信號處理與系統鑑別Signal Processing and System Identification ME393(3) | 機械工程實務Practice of Mechanical EngineeringME381(2) | 自動化機械設計Machine Design PracticeME441(3) | 伺服控制系統Servo ControlME422(3) |
|  |  |  |  | 電腦機械繪圖Computer-Aided DraftingME444(3) | 機器人作業系統Robot Operating SystemME382(2) | 流體機械Fluid MachineryME442(3) | 內燃機學Internal Combustion EngineME448(3) |
|  |  |  |  | 汽車學Automotive EngineeringME470(3) | 機械職能與關鍵就業力Competencies and Key Employability Skills of Mechanical EngineersME383(3) | 科技英文Technical English ME452(3) | 空氣動力學Aerodynamics ME457(3) |
|  |  |  |  |  |  | 半年專業實習Advanced Field Study ME453(6) | 能源與環境Energy and EnvironmentME461(3) |
|  |  |  |  |  |  | 能源工程Energy Science and TechnologyME454 (3) | 電子構裝製程與設備Process and Equipment for Electronic Packaging ME462(3) |
|  |  |  |  |  |  | 微機電製程與設備概論Introduction of the Micro Electro Mechanical Systems: Processes and FacilitiesME471(3) | 材料破壞分析Material Failure AnalysisME463(3) |
|  |  |  |  |  |  | 專利分析Patent AnalysisME478(3) | 微感應器設計與製造The Design and Manufacturing Processes of Micro SensorsME465(3) |
|  |  |  |  |  |  | 材料之選擇與應用The Selection and Application of MaterialsME480(3) | 應力分析實務Practice of Stress AnalysisME476(3) |
|  |  |  |  |  |  | 燃料電池概論Introduction to Fuel Cell TechnologyME483(3) | 太陽能電池Solar CellME486(3) |
|  |  |  |  |  |  | 材料機械行為Mechanical Behavior of MaterialsME493(3) | 老人福祉科技產業學堂專題講座Gerontechnplogy Industry School SeminarME491(1) |
|  |  |  |  |  |  | 氫能概論Introduction to Hydrogen EnergyME495(3) | 半導體封裝技術概論Introduction to Semiconductor PackagingME488(3) |
|  |  |  |  |  |  | 半導體製程與設備概論Introduction to Semiconductor Manufacturing and EquipmentME487(3) |  |
|  |  |  |  |  |  | 臨床醫學中的機械運用Machinery in Clinical Medicine ME420(2) |  |
|  |  |  |  |  |  |  |  |
| 備註Remarks | 1. 必選修課程：ME475機械畫(2)。

Course requirement: ME475Mechanical Drawing(2)。 |

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