元智大學機械工程學系博士班必選修科目表

（105學年度入學新生適用）

**List of Required and Elective Courses for Doctorate Degree of the Department of Mechanical Engineering of Yuan Ze University**

**（Applicable to Students Admitted for Academic year of 2016-2017）**

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

| 類別/組別  Group | 課號  Courses Number | 中文課名  Courses Chinese Name | 英文課名  Courses English Name | 學分數  Credits |
| --- | --- | --- | --- | --- |
| Required Courses  (Choose one out of four courses) | ME515 | 微分方程 | Differential Equations | 3 |
| ME535 | 高等數值分析 | Advanced Numerical Analysis | 3 |
| ME556 | 高等工程數學 | Advanced Engineering Mathematics | 3 |
| ME571 | 高等線性代數 | Advanced Linear Algebra | 3 |
| Required Courses | ME503 | 書報討論 | Seminar | 0 |
| Elective Courses | EG501 | 統計實驗設計與應用 | Statistical Experimental Design and Application | 3 |
| EG502  ME518 | 能源材料 | Energy Materials | 3 |
| ME506 | 真空薄膜製程與檢測技術 | Vacuum Process and Characterization of Thin Films Materials | 3 |
| ME508 | 微機電量測技術 | MEMS Measurement Technology | 3 |
| ME510 | 微致動器原理 | Theory of Micro Actuator | 3 |
| ME511 | 彈性力學 | Elasticity | 3 |
| ME512 | 薄膜原理與製程技術 | The Principles and Technologies of Thin Film | 3 |
| ME513 | 電腦輔助設計及製造 | Computer Aided Design and Manufacturing | 3 |
| ME516 | 核能發電 | Nuclear Power Generation | 3 |
| ME517 | 有限元素法 | Finite Element Method | 3 |
| ME519 | 熱對流學 | Convective Heat Transfer | 3 |
| ME520 | 塑性力學 | Applied Plasticity | 3 |
| ME521 | 高等流體力學 | Advanced Fluid Mechanics | 3 |
| ME522 | 電腦輔助實務分析與應用 | Computer Aided Analysis for Mechanical Design | 3 |
| ME525 | 線性系統 | Linear Systems | 3 |
| ME526 | 連體力學 | Continuum Mechanics | 3 |
| ME527 | 最佳化設計 | Design Optimization | 3 |
| ME530 | 破壞力學 | Fracture Mechanics | 3 |
| ME532 | 振動學 | Vibration | 3 |
| ME533 | 兩相流 | Theory of Two-phase Flow | 3 |
| ME534 | 高等熱傳學 | Advanced Heat Transfer | 3 |
| ME536 | 燃燒學 | Combustion | 3 |
| ME537 | 自動飛行控制系統 | Automatic Flight Control System | 3 |
| ME538 | 計算流力及熱傳學 | Computational Fluid Dynamics and Heat Transfer | 3 |
| ME539 | 從物理學到生理學 | From Physics to Physiology: An Interdisciplinary Approach to Solve Biomedical Problems | 3 |
| ME540 | 自動化工程 | Automation and CIM | 3 |
| ME541 | 材料機械性質 | Mechanical Behavior of Materials | 3 |
| ME542 | 熱輻射 | Radiative Heat Transfer | 3 |
| ME543 | 高等工程材料 | Advanced Engineering Materials | 3 |
| ME544 | 微電腦與機械控制 | Microcomputers in Mechanical Systems | 3 |
| ME547 | 多相流系統 | Multiphase Flows and Systems | 3 |
| ME549 | 電漿放電原理 | Principle of Plasma Discharge | 3 |
| ME550 | 幾何模型與電腦繪圖 | Geometric Modeling and Computer Graphics | 3 |
| ME551 | 高等製造工程與系統整合 | Advanced Manufacturing Technology and System Integration | 3 |
| ME553 | 電化學工程 | Electrochemical Engineering | 3 |
| ME554 | 板及殼原理 | Plate and Shell | 3 |
| ME555 | 黏滯流學 | Viscous Flow | 3 |
| ME557 | 非破壞檢測 | Non-Destructive Evaluation | 3 |
| ME558 | 數位控制 | Digital Control | 3 |
| ME561 | 污水處理設備設計 | Equipment Design for Waste Water Treatment | 3 |
| ME562 | 強健控制 | Robust Control | 3 |
| ME563 | 精密機械與量測 | Precision Engineering & Measurement | 3 |
| ME566 | 高等熱力學 | Advanced Thermodynamics | 3 |
| ME567 | 老人福祉科技 | Introduction to Gerontechnology | 3 |
| ME568 | 光電原理與應用 | Principles of Optoelectronics and Applications | 3 |
| ME570 | 焚化原理及技術 | Incineration | 3 |
| ME572 | 燃燒器設計與污染防治 | Combustor Design and Pollution Control | 3 |
| ME573 | 材料實驗方法 | Experimental Methods for Engineering Materials | 3 |
| ME574 | 燃料電池理論與數值分析 | Numeric Analysis for Fuel Cell Systems | 3 |
| ME575 | 電廠工程 | Power Plant Technology | 3 |
| ME577 | 防火工程 | Fire Protection Engineering | 3 |
| ME578 | 統計與資料分析 | Statistics and Data Analysis | 3 |
| ME579 | 高溫固態氧化物燃料電池 | High Temperature Solid Oxide Fuel Cell | 3 |
| ME580 | 材料疲勞損傷分析 | Fatigue of Engineering Materials | 3 |
| ME581 | 燃料電池技術與系統設計 | Fuel Cell Technology and System Design | 3 |
| ME583 | 推進系統概論與應用 | Rocket Propulsion System | 3 |
| ME584 | 新能源技術 | Advanced Technologies in Energy and its Applications | 3 |
| ME586 | 空氣污染控制設計 | Air Pollution Design | 3 |
| ME588 | 熱對流理論與設計應用 | Heat Transfer Theory and Design Applications | 3 |
| ME589 | 電子構裝力學分析 | Stress Analysis of Electronic Packaging | 3 |
| ME590 | 醫學工程原理與應用 | Principle and Applications of Biomedical Engineering | 3 |
| ME591 | 電子構裝失效模式分析 | Failure Modes in Electronic Packages | 3 |
| ME592 | 廢棄物處理特論 | Technology of Waste Treatment | 3 |
| ME594 | 微機電系統與檢測技術 | Micro-Electro Mechanical Systems and its Testing Techniques | 3 |
| ME599 | 智慧控制系統 | Intelligent Control Systems | 3 |
| ME601 | 可壓縮流學 | Compressible Flow | 3 |
| ME603 | 複合材料力學 | Mechanics of Composite Material | 3 |
| ME607 | 實驗力學 | Experimental Mechanics | 3 |
| ME608 | 電子冷卻技術 | Electronic Cooling Techniques | 3 |
| ME610 | 創新產品設計 | Innovative Product Design | 3 |
| ME611 | 創新產品開發實務 | Innovative Product Development Practice | 3 |
| ME906 | 高溫氣體動力學 | High Temperature Gas Dynamics | 3 |
| ME924 | 誤差理論分析 | Error Theory Analysis | 3 |
| 備註  Remarks  全文完 | 1. 最低畢業學分數：30學分（包含6學分論文），其中至少需修畢列於本表12學分之選修課程，其餘學分數經指導教授同意後，可修習外所（限研究所）課程。 2. 必修科目：四選一之必修及書報討論（0學分，2學期）需於畢業年限前修完。 3. 外籍生除必修書報討論（0學分，2學期）及論文外，必須修滿經指導教授認可之選修課程24學分（限研究所）。外籍生得加選一科3學分研究所課程抵免二學期「書報討論」。 4. 系統選課前須填寫指導教授「選課同意表」，並經指導教授同意後使可選課，若擅自更改科目，爾後系上不承認該學分時不得有異議。 5. 入學研究生須依本校學術研究倫理教育課程實施要點規定，於入學第一學期結束前完成學術研究倫理教育課程，最遲須於申請學位口試前補修完成，未完成本課程，不得申請學位口試。 6. 相關規定請參閱網址http://www.mech.yzu.edu.tw/各項法規/課業/研究所(博士班)/ 博士班修業辦法。 7. Minimum credits for graduation are 30 credits (including 6 credits for thesis).   Please take 12 credits out of 30 credits from the above list, and the rest of credits are approved by the advisor. You can register graduate courses from ME department and other departments.   1. The required courses are “One Out of Four Courses” and ME503 Seminar (0 credit for two semesters) which have to be completed before graduation. 2. Foreign students take not only ME503 Seminar (0 credit for two semesters) and thesis, but also elective courses with 24 credits approved by your advisor. For elective courses, the ME department only admits two courses from the fourth year of undergraduate program. Foreign students can take one additional graduate three-credit course in lieu of ME503 Seminar for two semesters. 3. All graduate students should fill out “Advisor Approval Courses Form” and be approved by the advisor before register any courses on the portal system. The form cannot be changed by yourself to avoid disputes. 4. Based on the regulations of Yuan Ze University Academic Research Ethics Education Course Implementation Highlights, all graduate students should complete Academic Research Ethics Education Course by the end of first semester. The deadline for the course completion has to be the date before the application of thesis oral defense. "No Course and No Defense." 5. Other rules refer to <http://www.mech.yzu.edu.tw/menu/index/id/10142> | | | |

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