**元智大學工程學院化學工程與材料科學學系**

**與大陸地區學校雙聯學制碩士班／博士班 必修科目表**

**（113學年度入學新生適用）**

 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

|  |  |  |
| --- | --- | --- |
| 學年(Year)學期Semester)科目(Course) | 第一學年1st Year | 第二學年2nd Year |
| 上學期Fall Semester  | 下學期Spring Semester | 上學期Fall Semester  | 下學期Spring Semester |
| 碩士班 | 必修科目 Required Course | 書報討論SeminarCH623 (1)  | 書報討論SeminarCH624 (1) | 書報討論SeminarCH623 (1) | 書報討論SeminarCH624 (1) |
|  |  |  | 論文(Thesis)CH606 (6) |
| 學分小計Total credits | 0 | 0 | 0 | 6 |
| 博士班 | 必修科目(12)Required Course(12) |  |  |  | 論文(Dissertation)CH901(12) |
| 學分小計Total credits | 0 | 0 | 0 | 12 |
| 備 註Remarks | 1. 雙聯學制碩士班研究生，除論文6學分及書報討論外，至少應修習本系課程二門(共6學分)。；雙聯學制博士班研究生，除論文12學分外，至少應修習本系課程一門(3學分)。
2. 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。」
3. 其他未盡事宜，請參閱本系「碩士班修讀辦法」或「博士班修讀辦法」。
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**元智大學工程學院化學工程與材料科學學系**

**與大陸地區學校雙聯學制碩士班／博士班 選修科目表**

**（113學年度入學新生適用）**

|  |  |  |
| --- | --- | --- |
| 學年、學期Year/ Semester科目Course選修領域Options | 第一學年1st Year | 第二學年2nd Year |
| 上學期Fall Semester | 下學期Spring Semester | 上學期Fall Semester | 下學期Spring Semester |
| 核心科目Core course | 科技英文Technical WritingCH502 (3) |  |  |  |
|  | 科技論文寫作Methods of Research and Thesis Writing CH570 (3) | 統計實驗設計與應用Statistical Experimental Design and Application EG501 (3) | 可靠度工程Reliability EngineeringIE566 (3) | 智慧財產權Copyright ProtectionCH801 (3) |
| 高等品質管制Advanced Quality Control IE531 (3) |
| 高分子材料領域Polymer Materials | 高分子化學Polymer ChemistryCH509 (3) | 高等儀器分析(二)Advanced Instrumental Analysis (Ⅱ)CH526 (3) | 專題討論Seminars in Science and EngineeringCH517 (3) | 生物高分子特論Special Topics on BiomacromoleculesCH519 (3) |
| 實驗設計Experimental DesignCH511 (3) | 高分子物理Polymer PhysicsCH527 (3) | 平面顯示器材料化學Chemistry of Materials for Flat Visual DisplayCH521 (3) | 表面分析特論Special Topics on Surface AnalysisCH536 (3) |
| 高等儀器分析Advanced Instrumental AnalysisCH525 (3) | 質子交換膜燃料電池特論Special Topics on Proton-exchange-membrane Fuel Cells CH566 (3) | 有機半導體材料特論Special Topics on Organic Semiconductor Materials CH589 (3) | 材料特性分析Analysis of Materials [properties](http://tw.dictionary.yahoo.com/search?ei=UTF-8&p=property)CH620 (3) |
| 高分子熱力學Polymer ThermodynamicsCH528 (3) |  |  |  |
| 藥物制放特論Special Topics on Controlled Drug ReleaseCH535 (3) |  |  |  |
| 生化工程領域Biochemical Engineering | 實驗設計Experimental DesignCH511 (3) | 高等化工熱力學Advanced Chemical Engineering ThermodynamicsCH514 (3) | 專題討論Seminars in Science and EngineeringCH517 (3) | 生物高分子特論Special Topics on BiomacromoleculesCH519 (3) |
| 高等儀器分析Advanced Instrumental AnalysisCH525 (3) | 高等儀器分析(二)Advanced Instrumental Analysis (Ⅱ)CH526 (3) | 薄膜分離技術Membrane SeparationsTechnologyCH520 (3) | 製藥技術工程Pharmaceutical EngineeringCH579 (3) |
| 藥物制放特論Special Topics on Controlled Drug ReleaseCH535 (3) | 分離技術特論Special Topics on Separations Technology CH534(3) | 環境生物技術Environmental BiotechnologyCH586 (3) | 細胞訊息路徑Cellular Signal TransductionCH610 (3) |
| 生物物理化學Biophysical ChemistryCH548 (3) | 生物模擬材料Biomimetic MaterialsCH569 (3) | 再生醫學Regenerative MedicineCH609 (3) |  |
| 高等生化工程Advanced Biochemical EngineeringCH584 (3) | 生物醫學工程Biomedical EngineeringCH599(3) | 計算生物學Computational Biology CB537 (3) |  |
| 分子生物學Molecular Biology CB521(3) | 基因體學與蛋白體學Genomics and ProteomicsCB530 (3) |  |  |
| 材料科學領域Materials Science | 實驗設計Experimental DesignCH511 (3) | 高等儀器分析(二)Advanced Instrumental Analysis (Ⅱ)CH526 (3) | 專題討論Seminars in Science and EngineeringCH517 (3) | 光電材料與應用Optoelectronic Materials and its ApplicationsER505 (3) |
| 高等儀器分析Advanced Instrumental AnalysisCH525 (3) | 質子交換膜燃料電池特論Special Topics on Proton-exchange-membrane Fuel Cells CH566 (3) | 電化學特論Special Topics on Electrochemical EngineeringCH539(3) | 表面分析特論Special Topics on Surface AnalysisCH536 (3) |
| 精密陶瓷概論Introduction to Fine CeramicsCH530 (3) | 無機奈米材料Inorganic NanomaterialsCH568 (3) | 太陽能技術Solar Energy TechnologyCH588 (3) | 光電材料特論Special Topics on Optoelectronic MaterialsCH537 (3) |
| 藥物制放特論Special Topics on Controlled Drug ReleaseCH535 (3) | 化學蒸鍍技術Chemical Vapor DepositionC H577 (3) | 有機半導體材料特論Special Topics on Organic Semiconductor Materials CH589 (3) | 觸媒原理與應用Catalyst Principles and Applications CH578 (3) |
| 材料物理化學Physical Chemistry of MaterialsCH600 (3) | 物理冶金Physical MetallurgyCH617 (3) | 奈米材料製備與觸媒應用Nanomaterial Preparations and Catalytic ApplicationsCH607 (3) | 材料特性分析Analysis of Materials [properties](http://tw.dictionary.yahoo.com/search?ei=UTF-8&p=property)CH620 (3) |
|  | 相變態Phase TransformationsCH604 (3) | 晶體結構與缺陷Crystal Structure and Defects CH618 (3) | 結晶學與繞射概論Elements of Crystallography and Principles of X-Ray Diffraction CH619 (3) | 鋰電池材料與製程技術Materials and Processing of Lithium BatteryCH701 (3) |
| 光電材料與元件Optoelectronic Materials and Devices CH622 (3) |  | 計算材料學Calculation in Materials Science CH621 (3) |  |
| 磁性材料概論Introduction to Magnetic MaterialsCH625(3) |  |  |  |
| 程序工程領域Process Engineering | 高等輸送現象Advanced Transport PhenomenaCH501 (3) | 應用數值分析Applied Numerical AnalysisCH507 (3) | 專題討論Seminars in Science and EngineeringCH517 (3) | 懸浮微粒制技術Particulate Control TechniqueCH564 (3) |
| 高等化工動力學Advanced Chemical Engineering KineticsCH503 (3) | 高等化工熱力學Advanced Chemical Engineering ThermodynamicsCH514 (3) | 薄膜分離技術Membrane Separations TechnologyCH520 (3) | 氣膠學Aerosol ScienceCH574 (3) |
| 實驗設計Experimental DesignCH511 (3) | 高等儀器分析(二)Advanced Instrumental Analysis (Ⅱ)CH526 (3) | 分離技術特論Special Topics on Separations Technology CH534(3) |  |
| 高等儀器分析Advanced Instrumental AnalysisCH525 (3) | 反應器設計Reactor DesignCH561 (3) |  |  |
|  | 薄膜程序設計與應用Design and Applications of Membrane ProcessesCH585 (3) |  |  |
| 永續發展領域Sustainable Development | 高等輸送現象Advanced Transport PhenomenaCH501 (3) | 應用數值分析Applied Numerical AnalysisCH507 (3) | 專題討論Seminars in Science and EngineeringCH517 (3) | 光電材料與應用Optoelectronic Materials and its ApplicationsER505 (3) |
| 實驗設計Experimental DesignCH511 (3) | 綠色工程創意設計Innovative Design for Green EnergyER509 (3) | 分離技術特論Special Topics on Separations Technology CH534(3) | 懸浮微粒制技術Particulate Control TechniqueCH564 (3) |
| 環境系統工程Environmental Systems EngineeringCH518 (3) | 高等儀器分析(二)Advanced Instrumental Analysis (Ⅱ)CH526 (3) | 電化學特論Special Topics on Electrochemical EngineeringCH539 (3) | 質子交換膜燃料電池特論Special Topics on Proton-exchange-membrane Fuel CellsCH566 (3) |
| 高等儀器分析Advanced Instrumental AnalysisCH525 (3) | 質子交換膜燃料電池特論Special Topics on Proton-exchange-membrane Fuel Cells CH566 (3) | 太陽能技術Solar Energy TechnologyCH588 (3) | 氣膠學Aerosol ScienceCH574 (3) |
| 環境生物技術Environmental BiotechnologyCH586 (3) | 環工程序化學Environmental Process ChemistryCH573 (3) | 有機半導體材料特論Special Topics on Organic Semiconductor Materials CH589 (3) | 觸媒原理與應用Catalyst Principles and Applications CH578 (3) |
| 材料物理化學Physical Chemistry of MaterialsCH600 (3) | 燃料電池Fuel CellsCH575 (3) |  | 鋰電池材料與製程技術Materials and Processing of Lithium BatteryCH701 (3) |
|  | 光電材料與元件Optoelectronic Materials and Devices CH622 (3) |  |  |
| 備註Remarks |  |