

國立高雄大學 化學工程及材料工程系 碩士班 專業必修課程表

**The Required Courses of the MA Program,
Department of Chemical Engineering and Materials Engineering,
National University of Kaohsiung**

105 學年以後(含)入學學生適用

Applicable to students admitted in the 105th academic year and thereafter (inclusive)

Year 1		Year 2		Year 3		Year:4	
上學期 S1	下學期 S2	上學期 S1	下學期 S2	上學期 S1	下學期 S2	上學期 S1	下學期 S2
專題討論 Seminar (0)	專題討論 Seminar (0)	專題討論 Seminar (0)	專題討論 Seminar (0)	專題討論 Seminar (0)	專題討論 Seminar (0)	專題討論 Seminar (0)	專題討論 Seminar (0)
化工與材料特論 Special Topics on Chemical Engineering and Materials Science (3)	精密儀器分析與實作 Instrumental analysis and laboratory for precision equipments (3)						
3	3	0	0				

- * 最低畢業學分: 24 學分; 專業必修學分: 6 學分。(須通過學位考試)
Minimum graduation credits: 24 credits; required professional credits: 6 credits.
(Must pass the degree examination)
- * 本系核心課程 3 組: (1)高等熱力學; (2)高等動力學/高等輸送現象; (3)電子顯微鏡原理與應用/X 光繞射與晶體結構; 學生畢業前, 至少選修兩組課程, 每組課程至少選修一門。
The department offers three core course groups: (1) Advanced Thermodynamics; (2) Advanced Dynamics/Advanced Transport Phenomena; (3) Principles and Applications of Electron Microscopy/X-ray Diffraction and Crystal Structure.
Before graduation, students must select courses from at least two of these groups, with at least one course from each selected group.

- * 經化學工程及材料工程學系 107 年 5 月 1 日 106 學年度第三次課程委員會議、107 年 5 月 3 日 106 學年度第八次系務會議（附件 19-2,P.149）、工學院 107 年 5 月 9 日 106 學年度第 2 次院課程委員會議、107 年 5 月 31 日 106 學年度第 2 次校課程員會通過在案。

Approved through the following meetings: the 3rd Curriculum Committee Meeting of the Department of Chemical Engineering and Materials Engineering for the 106th academic year on May 1, 2018; the 8th Department Affairs Meeting for the 106th academic year on May 3, 2018 (Annex 19-2, P.149); the 2nd Curriculum Committee Meeting of the College of Engineering for the 106th academic year on May 9, 2018; and the 2nd University Curriculum Committee Meeting for the 106th academic year on May 31, 2018.

- * 經化學工程及材料工程學系 107 年 8 月 107 學年度第一次系課程委員會、107 年 9 月 11 日 107 學年度第一次系務會議、107 年 11 月 7 日 107 學年度院課程委員會、107 年 11 月 28 日 107 學年度第二次校課程委員會通過在案。

This matter was approved by the Department of Chemical Engineering and Materials Engineering at its 1st Department Curriculum Committee Meeting of the 2018-2019 academic year in August 2018, its 1st Departmental Meeting of the 2018-2019 academic year on September 11, 2018, the College of Engineering at its Faculty Curriculum Committee Meeting on November 7, 2018, and the University Curriculum Committee at its 2nd meeting on November 28, 2018.

- * 經化學工程及材料工程學系 110 年 2 月 1 日 109 學年度第六次系課程委員會、110 年 6 月 7 日 109 學年度第七次系務會議通過在案。

This matter was approved by the Department of Chemical Engineering and Materials Engineering at its 6th Departmental Curriculum Committee Meeting of the 2020-2021 academic year on February 1, 2021, and its 7th Departmental Meeting of the 2020-2021 academic year on June 7, 2021.

- * 經化學工程及材料工程學系 113 年 1 月 12 日 112 學年度第二次系課程委員會。

Approved by the Department of Chemical Engineering and Materials Engineering at its 2nd Departmental Curriculum Committee Meeting of the 2023-2024 academic year on January 12, 2024.

- * 經化學工程及材料工程學系 113 年 10 月 21-28 日 113 學年度第二次系課程委員會、113 年 11 月 13 日 113 學年度第 4 次系務會議通過在案。

Approved by the Department of Chemical Engineering and Materials Engineering at its 2nd Departmental Curriculum Committee Meeting of the 2024-2025 academic year (October 21-28, 2024) and its 4th Departmental Meeting of the 2024-2025 academic year on November 13, 2024.

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核心課程 Core Courses	(1)高等熱力學 Advanced Thermodynamics (3) (2)高等動力學 Advanced Kinetics (3)/高等輸送現象 Advanced Transport Phenomena (3) (3) 電子顯微鏡原理與應用 Theory and Applications of Electron Microscopy (3)/X光繞射與晶體結構 X-ray diffraction and The crystal structure (3)		
專業選修課程 Professional Elective Courses	固態物理 Solid State Physics (3) 反應工程 Reaction Engineering (3) 半導體製程 Semiconductor Processing (3) 光電材料與製程 Photoelectric Materials and Fabrication Process (3) 薄膜工程 Thin Film Engineering (3) 陶瓷材料工程 Ceramic Materials Engineering (3) 陶瓷製程特論 Ceramic Processing Topics (3) 粉體科技 Powder Technology (3) 液晶聚合物特論 Liquid Crystal Polymer Topics (3) 太陽能電池材料與元件 Solar cell materials and devices (3)	高分子合成 Polymer Synthesis (3) 高分子特論 Polymer Topics (3) 表面科學與分析 Surface Science and Analysis (3) 電化學特論 Electrochemistry Topics (3) 薄膜分離技術 Membrane Separation Technology (3) 量子物理與化學 Quantum Physics and Chemistry (3) 特用化學品 Special Chemicals (3) 感測器原理與應用 Sensors Principles and Applications (3) 封裝材料 Packaging Materials (3)	生醫材料 Biomedical Materials (3) 智慧材料 Intelligent Materials (3) 製藥工程 Pharmaceutical Engineering (3) 基因工程 Genetic Engineering (3) 蛋白質工程 Protein Engineering (3) 微奈米機電系統 Micro Electro Mechanical Systems (3) 奈米生醫材料 Nano Biomaterials (3) 生物輸送現象 Biomedical Transport Phenomena (3) 生醫工程特論 Biomedical Engineering Topics (3) 細胞與組織工程 Cell

	<p>有機電激發光顯示器 Organic Electroluminescent Displays (3)</p> <p>通訊材料與工程 Communication Materials and Engineering (3)</p> <p>鈦合金材料特性與應用 Titanium Alloy Material Characteristics and Applications (3)</p> <p>物理冶金特論 Physical Metallurgy (3)</p> <p>智能金屬理論與實務 Intelligent Metal Theory and Applications (3)</p> <p>輸送現象特論 Special Topics on Transport Phenomena(3)</p>	<p>複合材料 Composite Materials (3)</p> <p>奈米複合材料專題 Nanocomposite Materials Topics (3)</p> <p>應用膠體化學 Applied Colloid Chemistry (3)</p> <p>能源材料特論 Special Topics on Energy Materials (3)</p> <p>表面處理技術 Surface Treatment Technologies (3)</p> <p>奈米線與量子點製程與分析 Nanowires and Quantum Dots Processing and Analysis (3)</p> <p>材料表面分析 Material Surface Analysis (3)</p>	<p>and Tissue Engineering (3)</p> <p>科技英文 Technical English (3)</p> <p>機能性高分子 Functional Polymers (3)</p> <p>工程經濟 Engineering Economics (2)</p> <p>健康工程特論與實作 Health Engineering Topics and Practice (3)</p> <p>植物精油化學 Plant Essential Oil Chemistry (3)</p> <p>先進微電子構裝材料 Advanced Microelectronics Packaging Materials (3)</p> <p>材料科學原理 Principles of Materials Science (3)</p>
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