

國立高雄大學 化學工程及材料工程學系大學部 專業必修科目表

The Required Courses of the Undergraduate Curriculum,
Department of Chemical and Materials Engineering, National University of
Kaohsiung

107 學年以後(含)入學學生適用：Applicable to students admitted in the 107th academic year and thereafter (inclusive)

課程名稱 Course Title	學分 Credits	第一學年 Year 1		第二學年 Year 2		第三學年 Year 3		第四學年 Year 4		備註 Notes
		上 S1	下 S2	上 S1	下 S2	上 S1	下 S2	上 S1	下 S2	
微積分(一)(二) Calculus (I) (II)	6	3	3							
普通物理 General Physics	3	3								
普通化學(一)(二) General Chemistry (I) (II)	4	2	2							
普通化學實驗 General Chemistry Laboratory	1	1								
化工與材料科學導論 (一)(二) Introduction to Chemical Engineering and Materials Science (I) (II)	6	3	3							
生命科學概論 Introduction to Life Science	3	3								
物理化學(一)(二) Physical Chemistry (I) (II)	6		3	3						
普通物理實驗 General Physics Laboratory	1		1							
電子電工學 Electronic and Electrical Engineering	3		3							
工程數學(一)(二) Engineering Mathematics (I) (II)	6			3	3					
物理化學實驗 Physical Chemistry Laboratory	1			1						
有機材料化學(一)(二) Organic Materials Chemistry (I) (II)	6			3	3					

材料化學實驗 Materials Chemistry Laboratory	1			1						
物理冶金 Physical Metallurgy	3			3						
化工與材料動力學 Chemical and Material Reaction Engineering	3				3					
化工與材料輸送現象 (一)(二) Transport Phenomena in Chemical and Materials Engineering (I)(II)	6					3	3			
化工與材料熱力學 (一)(二) Chemical Engineering and Materials Thermodynamics (I)(II)	6					3	3			
材料物理 Materials Physics	3					3				
化工與材料實驗 (一)(二) Chemical and Materials Engineering Laboratory (I)(II)	2					1	1			
專題討論(一)(二) Seminar (I)(II)	0						0	0		

畢業學分 137 學分，必修 70 學分，選修 33 學分，通識 32 學分，專業應用型法律課程 2 學分。
Students should complete at least 137 credits, including 70 required credits and a minimum of 33 elective credits. General Education electives amount to 32 credits and courses of professional applied law over 2 credits are required.

國立高雄大學 化學工程及材料工程學系大學部 專業選修科目表

The Elective Courses of the Undergraduate Curriculum,
Department of Chemical and Materials Engineering, National University of
Kaohsiung

107 學年入學新生適用：Applicable to students admitted in the 107th academic year and
thereafter (inclusive)

尖端功能性材料 (Materials Technology)	奈米與分子工程 (Nano and Molecular Engineering)	生醫工程及材料 (Biochemical Engineering)
高分子化學(Polymer Chemistry) 微奈米機電系統(Nano-Electro-Mechanical-Systems) 感測器原理與應用 (Sensors Principles and Applications (3))		
無機材料化學(Inorganic Materials Chemistry) 能源材料(Energetic Materials) 機能性高分子(Functional Polymers) 特用化學品(Speciality Chemicals) 薄膜工程(Thin Film Engineering) 複合材料(Composites) 粉體科技(Powder Science and Technology)		
	奈米複合材料專題(Practical Nanocomposites) 智慧材料(Intelligent Materials) 應用膠體化學(Applied Colloid Chemistry) 生醫材料(Biomaterials) 單元操作理論與實作(Unit Operations Laboratory)	
電子電工專題(Special Topic on Electrical and Electronic Engineering) 光電工程概論(Introduction on optical Engineering) 物理冶金專題(Selected Topics in Physical Metallurgy) 晶體繞射原理(Theory of Crystalline Diffraction) 金屬材料(Metal Materials) 物理冶金特論(Special Topics in Physical Metallurgy) 材料機械性質(Mechanical Behavior of Materials) 材料力學(Material Mechanics) 半導體物理(Semiconductor Physics) X-光繞射與晶體結構(X-ray Diffraction and Crystal Structure) 陶瓷材料工程(Ceramic	界面化學(Interface Chemistry) 奈米與分子工程概論 (Introduction to Nanotechnology and Molecular Engineering) 奈米材料導論(Introduction to Nano Materials) 高分子物理(Polymer Physics) 儀器分析(Instrumental Analysis) 材料表面分析(Material Surface Analysis) 應用電化學(Applied Electrochemistry) 高分子特論(Special Topics on Polymer) 高分子加工與應用(Applied Polymer Chemistry) 電子顯微鏡理論與應用 (Theory and Applications of Electron Microscopy)	生物技術概論(Introduction to Biotechnology) 生物化學(Biochemistry) 生物化學專題(Special Topic Biochemistry) 生化工程概論(Biochemical Engineering) 生醫工程概論(Biomedical Engineering) 奈米生醫材料 (Nanobiomaterials) 藥物制放與輸送(Drug Delivery and Control Release) 細胞與組織工程(Cellular and Tissue Engineering) 蛋白質工程(Protein Engineering) 基因工程(Gene Engineering) 微生物工程(Microbiological Engineering) 健康工程特論與實作(Special Topics and Practices in

Material Engineering) 半導體製程(Semiconductor Processing) 光電材料與製程 (Photoelectric Materials and Fabrication Process) 封裝材料(Packaging Materials) 鈦合金材料特性與應用 (Characteristics and Applications of Titanium Alloys) 太陽能電池材料與元件(Solar cell Materials and Devices) 有機材料化學特論(Special Topics of Organic Materials Chemistry)	表面處理與防蝕技術(Surface Treatment and Corrosion Control Technology) 觸媒化學(Catalysis Chemistry) 反應工程(Reaction Engineering)	Healthcare Engineering) 精油化學與實務(Chemistry and Practice of Essential Oil) 鈦合金材料特性與應用 (Characteristics and Applications of Titanium Alloys) 植物精油化學 (Cheistry of Plant Essential oils)
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其他專業選修(Others)： 專題研究 (I) (II) (III) (Project Study(I) (II) (III)) 科技英文(Scientific English)、 鋼鐵概論與熱處理(Introduction to Steel and Heat Treatments On Steel)、 業界實習 (I) (II)(Industry Internship (I) (II))、 工程經濟(Engineering Economics)、 工程管理(Engineering Management)、 工程倫理(Engineering Ethics)、 應用統計學(Applied Statistics)、 程序控制(Process Control)、 程序設計(Process Design)、 環境工程概論(Introduction to Environmental Chemistry)、 化工機械(Chemical Engineering and Machinery)、 安全衛生與環保(Industrial Safety)、 科技行銷管理(Technology Marketing)、 專利與(化材)新產品開發(IP & New Product Development for Chemical & Material Science Students)、 材料表面處理技術與防蝕工程(Surface treatment and corrosion protection of material)、 智慧財產權保護法制與實用(Introduction and Practice of Intellectual Property Rights)、 科技人之法學素養(Legal literacy of technologists) 實驗設計與數據處理(Experiment Data Rrocessing)、 生質能源技術(Bioenergy Technologies) 質能均衡(Elementary Principles of Chemical Processes) *石油化學工業實務(Practice of Petrochemical Industry)、 「本系碩士班選修課程」(the elective courses of the Master's Curriculum in our department)。
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*中油公司業師協同授課