

114-2學年度課程規劃表

## 半導體工程與材料系

日間部春四技

第一學年					第二學年					第三學年					
科目	114-2		115-1		科目	115-2		116-1		科目	116-2		117-1		
	學分	時數	學分	時數		學分	時數	學分	時數		學分	時數	學分	時數	
校必修	分類通識	2	2	2	2	分類通識	2	2	2	2	分類通識	2	2	2	2
	科技英文(一)(二)	2	2	2	2	科技英文(三)(四)	2	2	2	2					
	應用中文(一)(二)	2	2	2	2	體育			2	2					
	體育	2	2	2	2										
	小計	8	8	8	8	小計	4	4	6	6	小計	2	2	2	2
院必修	程式設計	2	2								工程倫理	2	2		
	物理與物理實驗	2	2								半導體產業與前瞻技術			2	2
	化學與化學實驗	2	2												
	微積分(一)(二)	3	3	3	3										
	人工智慧概論			2	2										
	小計	9	9	5	5	小計	0	0	0	0	小計	2	2	2	2
專業必修	材料科學概論(一)(二)	2	2	2	2	電子材料	3	3			實務專題	1	1	1	1
	物理化學與實驗			3	3	有機化學與實驗	3	3			材料熱力學	3	3		
						物理冶金	3	3			高科技廠務	3	3		
						真空技術與實務	3	3			半導體製程技術	3	3		
						金屬與無機材料			3	3	材料工程實驗			3	3
						材料物理性質			3	3	材料分析與實驗			3	3
						儀器分析與實驗			3	3	工業安全與衛生			3	3
	小計	2	2	5	5	小計	12	12	9	9	小計	10	10	10	10
專業選修	半導體材料產業概論	2	2			創意智慧材料	3	3			太陽能電池材料概論	3	3		
	化學安全工程			2	2	綠色材料概論與實務			3	3	半導體元件	3	3		
	基本電學			2	2	工程數學	2	2			奈米材料	3	3		
						高分子材料	2	2			能源材料	3	3		
						生物化學			2	2	彩色濾光片製程技術	3	3		
						半導體設備概論			2	2	半導體封裝材料			3	3
											陶瓷材料概論			3	3
											晶體結構與繞射導論			3	3
											電子特用化學品			3	3
											薄膜材料科學			3	3
											IC Layout基礎技術實作			3	3

第四學年				
科目	117-2		118-1	
	學分	時數	學分	時數
校必修				
院必修				
專業必修				
專業選修				
	校外實習(一)(二)	9	9	9
	Python與機器學習	3	3	
	化合物半導體元件與製程	3	3	
	平面顯示器原理與製程實作	3	3	
	生成式人工智慧與應用	3	3	
	光譜分析與實作	3	3	
	IC Layout進階實務技術	3	3	
	材料機械性質			3
	表面工程與AI輔助			3
	半導體工程應用			3
	複合材料與實務			3
	氫能與燃料電池			3
	電化學分析技術與實務			3

## 【科目類別】

通識科目(分類通識):校必修

共同科目(體育):校必修

專業科目:院必修、專業必修、專業選修

【科目類別】	學分	時數
通識科目、共同科目	30	30
院必修	18	18
專業必修	48	48
專業選修	32	32
合計	128	128

## 【注意事項】

1. 最低畢業學分:128 學分, 含必修:96, 選修32學分(本系至少20學分, 其餘可跨系)。
2. 一、二、三年級每學期修課16-30學分, 四年級每學期修課9-30學分。
3. 表列專業選修課程, 得依實際情況進行調整。
4. 請依本校「學生基本能力與畢業門檻實施辦法」實施。
5. 校外實習課程, 請依相關實施要點辦理。
6. 畢業年級相當於國內高級中等學校二年級之國外或香港、澳門同類同級學校畢業生, 以同等學歷修讀本校學士學位者, 最低畢業學分:140學分, 可延長修業年限三年。
7. 本表建立於114年12月11日

半導體工程與材料系  
系主任 龍明有

半導體學院  
院長 陳啟文



MUST Curriculum Planning for Undergraduate Students of Academic Year 2026-2030,  
Department of Semiconductor Engineering and Materials

1st year					2nd year					3rd year							
Course	1st semester		2nd semester		Course	1st semester		2nd semester		Course	1st semester		2nd semester				
	Cr.	hr.	Cr.	hr.		Cr.	hr.	Cr.	hr.		Cr.	hr.	Cr.	hr.			
MUST Core Required Courses	Classified general Education	2	2	2	2	Classified general Education	2	2	2	2	Classified general Education	2	2	2	2		
	Applied English(I/II)	2	2	2	2	Applied English(III/IV)	2	2	2	2							
	Applied Chinese(I/II)	2	2	2	2	Physical Education			2	2							
	Physical Education	2	2	2	2												
Subtotal		8	8	8	8	Subtotal		4	4	6	6	Subtotal		2	2	2	2
School Professional Required Courses	Introduction to Programming	2	2									Ethics for Engineers	2	2			
	Physics and Physics Experiment	2	2									Semiconductor Industry and Advanced Technologies			2	2	
	Chemistry and Laboratory Calculus (I/II)	2	2	3	3												
	Introduction of artificial intelligence																
	Subtotal		9	9	5	5	Subtotal		0	0	0	0	Subtotal		2	2	2
Compulsory Courses	Introduction to Material science(I/II)	2	2	2	2	Electronic Materials	3	3			Special Topics Practice	1	1	1	1		
	Physical Chemistry and Laboratory			2	2	Organic Chemistry and Laboratory	3	3			Materials Thermodynamics	3	3				
						Physical Metallurgy	3	3			Special Topics in High-Tech Manufacturing	3	3				
						Practice of vacuum Technology and Semiconductor Manufacturing	3	3			Semiconductor Process Technology	3	3				
						Metals and inorganic materials			3	3	Materials Engineering Experiment			3	3		
						Physical Properties of Materials			3	3	Materials Analysis and Experiment			3	3		
						Fundamentals of Instrumental Analysis and Lab			3	3	Industrial Safety and Hygiene			3	3		
	Subtotal		2	2	4	4	Subtotal		12	12	9	9	Subtotal		10	10	10
Elective Courses	Introduction to semiconductor materials industry	2	2			Creative smart materials	3	3			Introduction to Solar Cell Materials	3	3				
	Chemical Process Safety Design			2	2	Green Materials: Principles and Practice			3	3	Semiconductor Device	3	3				
	Basic Electricity					Engineering Mathematics	2	2			Nanomaterials	3	3				
						Polymeric Materials	2	2			Energy Materials	3	3				
						Biochemistry			2	2	Color Filter (CF) Process Technology or Color Filter Manufacturing Process	3	3				
						Processing and Equipment			2	2	Semiconductor Packaging Materials			3	3		
											Introduction to Ceramics Materials			3	3		
											Introduction to Crystal Structure and Diffraction			3	3		
											Electronic Specialty Chemicals			3	3		
											Thin Film Materials Science			3	3		
										Practical IC Layout Basics			3	3			

4th year					
Course	1st semester		2nd semester		
	Cr.	hr.	Cr.	hr.	
MUST Core Required Courses					
Subtotal		0	0	0	0
School Professional Required Courses					
Subtotal		0	0	0	0
Compulsory Courses					
Subtotal		0	0	0	0
Elective Courses	Off-Campus Practice Training(I/II)	9	9	9	9
	Introduction of Python and Machine Learning	3	3		
	Compound Semiconductor Devices and Processes	3	3		
	Principles of Flat-Panel Displays and Practice	3	3		
	Generative AI and Applications	3	3		
	Spectroscopic Analysis and Implementation	3	3		
	Advanced Practical Techniques in IC Layout	3	3		
	Mechanical Properties of Materials			3	3
	Surface Engineering and AI Assistance			3	3
	Semiconductor Engineering Applications			3	3
Composite Materials and Applications			3	3	
Hydrogen Energy and Fuel Cells			3	3	
Electrochemical Analysis Techniques and Practices			3	3	

Cr./hr.=Credit/hour

Remarks:

- Minimum graduation credits: 128 credits. Compulsory credits: 96 credits. Elective credits: 32 credits (elective credits include inter-departmental elective credits); the elective credits for majors in the department must not be lower than 20 credits.
- In the first three years, students must take 16-30 credits per semester, and 9-30 credits per semester in the 4th year.
- Elective courses are subject to change if necessary.
- Please implement according to the school's "Implementation Measures for Students' Basic Abilities and Graduation Thresholds".
- Students should take off-campus internship courses, and the relevant measures are handled in accordance with the Implementation of Off-campus Internship Teaching for Students in the Department of Semiconductor Engineering and Materials".
- Students having graduated from a foreign country, including Hong Kong and Macau, with the equivalent of the second year of high school study of the ROC's high school sophomore level, or with a high school equivalent degree, need to take 140 credits. The program can be extended up to 3 academic years.
- This form created in 20251211.

半導體工程與材料系 系主任 龍明有

半導體學院 院長 陳啟文

