銘傳大學 半導體應用學士學位學程必選修科目表（114學年度入學生適用）

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Required and Elective Course List (Applicable to Students Admitted in the 2025 Academic Year)

科目 Subject	學分 Credits	時數 Hours	第一學年 First Year 上 First Semester 授課 Lecture	第一學年 First Year 上 First Semester 實習輔導 Practical Training & Guidance	第一學年 First Year 下 Second Semester 授課 Lecture	第一學年 First Year 下 Second Semester 實習輔導 Practical Training & Guidance	第二學年 Second Year 上 First Semester 授課 Lecture	第二學年 Second Year 上 First Semester 實習輔導 Practical Training & Guidance	第二學年 Second Year 下 Second Semester 授課 Lecture	第二學年 Second Year 下 Second Semester 實習輔導 Practical Training & Guidance	第三學年 Third Year 上 First Semester 授課 Lecture	第三學年 Third Year 上 First Semester 實習輔導 Practical Training & Guidance	第三學年 Third Year 下 Second Semester 授課 Lecture	第三學年 Third Year 下 Second Semester 實習輔導 Practical Training & Guidance	第四學年 Fourth Year 上 First Semester 授課 Lecture	第四學年 Fourth Year 上 First Semester 實習輔導 Practical Training & Guidance	第四學年 Fourth Year 下 Second Semester 授課 Lecture	第四學年 Fourth Year 下 Second Semester 實習輔導 Practical Training & Guidance	備註 Remarks
校定必修 中國文學鑑賞與創作（一）Chinese Literature: Appreciation And Creative Writing (I)	2	2	2																
中國文學鑑賞與創作(二) Chinese Literature: Appreciation And Creative Writing (II)	2	2			2													
人工智慧概論 Introduction to Artificial Intelligence	2	3	2	1														
大一英文(一) Freshman English(I)	2	2	2																備註1 Remarks1
大一英文（二）Freshman English (II)	2	2			2														備註1 Remarks1
大二英文(一) Sophomore English(I)	2	2					2												備註1 Remarks1
大二英文（二）Sophomore English (II)	2	2							2										備註1 Remarks1
通識教育 General Education	12	12																	備註2 Remarks2
體育(壹~肆) Physical Education (I~IV)	0	8	2		2		2		2										
小計	**26**	**35**	**8**	**1**	**6**		**4**		**4**										
專業必修 Required 計算機概論 Concept of Computer Science	3	3	3																電腦課程 Computer Courses
程式設計 Programming Design	3	5	3	2															電腦課程 Computer Courses
微積分(一) Calculus (I)	3	3	3																
物理學(一) Physics (I)	3	3	3																
微積分(二) Calculus (II)	3	3			3														

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Professional Courses 物理學(二) Physics (II)	3	3			3														
電路學(一) Electronic Circuits (I)	3	3			3														
物理學實驗 Physics Lab (I)	1	3			1	2													實作課程 Practical Courses
數位邏輯設計 Digital Logic Design	3	3			3														
電路學(二) Electronic Circuits (II)	3	3					3												
電子學(一) Electronics (I)	3	3					3												
電磁學(一) Electromagnetics (I)	3	3					3												
工程數學(一) Engineering Mathematics (I)	3	3					3												
電子電路實驗(一) Electronic Circuits Lab (I)	1	3					1	2											實作課程 Practical Courses
電子學(二) Electronics (II)	3	3							3										
電子電路實驗(二) Electronic Circuits Lab (II)	1	3							1	2									實作課程 Practical Courses
半導體元件導論 Introduction to Semiconductor Devices	3	3							3										課群核心 Core Course Group
專題研究(一) Research Project (I)	3	3											3						
專題研究(二) Research Project (II)	3	3													3				
小計	51	59	12	2	13	2	16	2	7	2			3		3				

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類別	科目 Course	學分	時數				A	A	B	B		C	C			備註
專業選修 Elective Professional Courses	普通化學 General Chemistry	3	3				3									新加選修課 New added
	數位系統設計與實習 Digital System Design and Lab	3	3				3									
	統計製程管制導論 Introduction to Statistical Process Control	3	3				3									新加選修課 New added
	線性代數 Linear Algebra	3	3				3									
	機率與統計 Probability and Statistics	3	3				3									
	材料科學導論 Introduction to Materials Science	3	3				3									新加選修課 New added
	程式設計(二) Programming Design(II)	3	5				3	2								
	半導體設備概論 Introduction to Semiconductor Equipments	3	3				3									新加選修課 New added
	微處理機原理與實習 Microprocessor Principles and Laboratory	3	4						3	1						
	熱力學與統計物理 Thermodynamics & Statistical Physics	3	3						3							新加選修課 New added
	電路模擬設計實習(spice) Circuit Simulation and Design Practice (SPICE)	3	3						3							電腦課程 Computer Courses
	近代物理 Modern Physics	3	3						3							
	電磁學(二) Electromagnetics (II)	3	3						3							
	工程數學(二) Engineering Mathematics (II)	3	3						3							
	半導體產業概論 Introduction to the Semiconductor Industry	3	3						3							新加選修課 New added
	環境綠色化學 Environmental and Green Chemistry	3	3									3				新加選修課 New added
	電子電路實驗(三) Electronic Circuits Lab (III)	1	3									1	2			實作課程 Practical Courses
	超大型積體電路導論 Introduction to VLSI Design	3	3									3				課群核心 Core Course Group
	計算機組織結構 Computer Organization and Architecture	3	3									3				
	電磁波 Electromagnetic Waves	3	3									3				

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科目名稱 Course																備註
光電元件 Optoelectronic Devices	3	3								3						
固態電子學 Solid State Electronics	3	3								3						課群核心 Core Course Group
半導體電子構裝技術 Semiconductor Electronic Packaging Technology	3	3								3						
積體電路測試導論 Introduction to Integrated Circuit Testing	3	3								3						
製程潔淨與化學品危害預防 Cleanroom Processes and Chemical Hazards Prevention	3	3								3						
體育(三上) Physical Education (III-1)	2	2								2						大三體育僅承認 2 學分 Only 2 credits of Physical Education in the third year are recognized.
固態物理 Solid-State Physics	3	3								3						新加選修課 New added
電子電路設計 Electronic Circuit Design	3	3									3					
積體電路布局設計 Integrated Circuit Layout Design	3	3									3					電腦課程 Computer Courses
半導體製程概論 Introduction to Semiconductor Manufacturing Technology	3	3									3					課群核心
電子材料概論 Introduction to Electronic Materials	3	3									3					
半導體量測 Semiconductor Measurements	3	3									3					
積體電路測試程式實務 Practical Applications of Integrated Circuit Test Programming	3	3									3					
高科技產業製程與安全技術評估 High-Tech Industry Processes and Safety Technology Evaluation	3	3									3					
人工智慧 Artificial Intelligence	3	3									3					
深度學習概論 Introduction to Deep Learning	3	3									3					

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科目名稱 Course																備註 Remarks
職場英文 Workplace English	3	3								3						
光電感測元件應用電路實習 Laboratory on Optoelectronic Sensor Circuit Applications	3	3								3						
體育(三下) Physical Education (III-2)	2	2								2						大三體育僅承認 2 學分 Only 2 credits of Physical Education in the third year are recognized.
製程安全管理與應用實務案例 Process Safety Management and Practical Case Studies	3	3										3				
企業實習 Corporate Internship	3	3										3				
職場實務 Workplace Practical Training	3	3										3				
Verilog 程式設計 Verilog Programming Design	3	3										3				
FPGA/CPLD 設計 FPGA/CPLD Design	3	3										3				
數位積體電路設計 Digital Integrated Circuit Design	3	3										3				
平面顯示器概論 Introduction to Flat Panel Displays	3	3										3				
半導體量測實驗 Semiconductor Measurement Experiments	3	3										3				
半導體可靠度工程導論 Introduction to Semiconductor Reliability Engineering	3	3										3				
奈米電子元件 Nanoelectronic Devices	3	3										3				
功率元件 Power Devices	3	3										3				
體育(四上) Physical Education (IV-1)	2	2										2				大四體育僅承認 2 學分 Only 2 credits of Physical Education in the fourth year are recognized.

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課程 Course																		備註 Notes
類比積體電路設計 Analog Integrated Circuit Design	3	3															3	
高頻電路設計 High-Frequency Circuit Design	3	3															3	
功率積體電路設計 Power Integrated Circuit Design	3	3															3	
矽光子元件設計 Silicon Photonics Device Design	3	3															3	
半導體電腦輔助設計 Semiconductor Computer-Aided Design	3	3															3	
記憶體元件 Introduction to Semiconductor Memory Devices	3	3															3	
企業進階實習 Advanced Corporate Internship	3	3															3	
職場實務專題 Workplace Practical Projects	3	3															3	
體育(四下) Physical Education (IV-2)	2	2															2	大四體育僅承認2學分 Only 2 credits of Physical Education in the fourth year are recognized.

必修科目學分數合計 Required Course Credits Total	77
至少應選修學分數 Minimum Elective Credits Required	51
本系專業選修學分數 Departmental Elective Credits	31
得承認外系選修學分數 Recognized Elective Credits from Other Departments	20
合計 Total	128

修業規定(Academic Regulations)：

1. 依本校學則規定，大學部學生需通過「英語能力」、「資訊能力」、「中文能力」、「運動能力」及「專業基本能力」檢定，始得畢業。

   In accordance with the university's academic regulations, undergraduate students must pass assessments in "English Proficiency," "Information Literacy," "Chinese Proficiency," "Physical Fitness," and "Fundamental Professional Competencies" in order to qualify for graduation.

2. 通識教育課程在畢業前至少必須修完 12 學分，課程分「人文」、「社會」、「自然」三個領

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域，每個領域再分「核心」、「延伸」二類，每個學生在每一領域的每一類至少必須修畢 2 學分方得畢業。各領域學生慕課及學生自主學習課程得認列為該領域延伸課程；若已修畢該領域延伸課程，則得認列為各系外系選修學分；可追溯至 113 學年度以前入學學生適用。

Students must complete at least 12 credits in General Education before graduation. The General Education courses are divided into three fields: "Humanities," "Social Sciences," and "Natural Sciences," each further subdivided into "Core" and "Extension" categories. Students must complete at least 2 credits from both categories in each field to meet graduation requirements. Courses offered by different departments and independent study courses may be recognized as extension courses within their respective fields. If a student has already completed the required extension courses in a field, the additional credits may be counted as elective credits outside their major. This regulation applies retroactively to students admitted before the 2024 academic year.

3. 學生修習外系課程本系最多列計 20 學分於畢業學分內。學生選修資訊學院各系專業課程或與資訊學院合作開設之學分學程內的課程可視為外系選修學分；若選修非資訊學院之專業課程或教育學程之學分，須於選課期間內經系主任同意後，方可列為外系選修學分。
A maximum of 20 credits from courses in other departments may be counted toward graduation requirements. Professional courses offered by departments within the College of Informatics, as well as courses from credit programs jointly established with the College of Informatics, may be considered interdepartmental elective credits. If students choose to take professional courses from departments outside the College of Informatics or courses from education programs, they must obtain approval from the department chair during the course selection period for the credits to be counted as interdepartmental electives.

4. 需重補修本系專業必修課程者，僅限大四學生得於選課期間內經主任同意後，以其他學系相同科目名稱或授課內容相同之課程對抵，並可列入畢業學分。
Fourth-year students who need to retake required professional courses from the department may, with the department chair's approval during the course selection period, substitute equivalent courses with the same course title or similar content offered by other departments. These substituted courses may be counted toward graduation credits.

5. 學生選修課群核心之課程至少需 4 選 3。
Students must select at least three courses from the four core courses in the designated elective course group.

6. 學生選修本系碩士班課程，可視為本系專業選修，其學分數得列計於畢業學分內。
Graduate-level courses offered by the department may be counted as professional elective credits and included in the total graduation credits.

7. 未列於畢業架構的跨領域學分學程之學分，可認列為外系學分。
Credits from interdisciplinary credit programs not included in the official graduation structure may be recognized as interdepartmental elective credits.