

國立陽明交通大學產學創新研究學院前瞻半導體研究所

碩士班乙組課程：晶片設計與自動化（簡稱：晶片組）

115 學年度

修業年限	1 年至 4 年為限。
應修學分數	24 學分(含主修組別核心課程至少 6 學分，及專業選修課程至少 12 學分) *核心課程應先滿足 6 學分規定，超過之核心課程學分可列計專業選修學分。
應修(應選)課程及符合畢業資格之修課相關規定	一、論文研討或應加總通過 2 學期，但論文研討不計入應修學分數 24 學分。論文研討課程可用本學院產學研究課程(業師課程或企業實習)申請免修，同意免修之產學研究課程不得計入應修學分數 24 學分。 二、學術研究倫理教育課程為必修教育課程，採網路教學方式，課程總測驗成績應達及格標準，但不計入應修學分數 24 學分。 三、專業核心課程 以下專業核心課程，若為「本所開設課程」或「本所專任老師開設課程」，應優先修習方可認列為核心課程學分。若為第二次重修則不在此限 1. 數位積體電路 2. 計算機結構 3. 記憶體電路及系統設計 4. 類比積體電路 5. 功率積體電路設計 6. 射頻積體電路 7. 高等演算法(或演算法) 8. 計算機輔助設計特論 9. 實體設計自動化 四、專業選修課程 由本所或本所專任老師開設的相關領域具代表性的推薦科目列示如下 1. 進階電子設計自動化 2. 射頻通訊系統放大器設計概論 相關領域具代表性的推薦科目列示如下，具體開課狀況請查詢當學期課表 1. 數位通訊積體電路 2. 數位信號處理超大型積體電路 3. 積體電路設計實驗 4. 資料轉換積體電路 5. 高等數位訊號處理 6. 深度學習 7. VLSI 測試與可測試性設計 8. 機器學習智能晶片設計 9. 圖形理論 10. 電源管理晶片設計與實作 11. 積體電路之靜電防護設計特論

	12. 影像處理 13. 隨機過程 14. 本校產學創新研究學院、電機學院、資訊學院、國際半導體學院、工學院和理學院專業研究所課程，且需指導教授同意，方可認列專業選修學分。 五、若課名、課綱超過三成相同時視為修習重複課程。僅擇一認列畢業學分 六、未盡事宜以本所通過之修業規章為準。
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Institute of Pioneer Semiconductor Innovation

MS Program

Area B-Chip Design and Automation Group (Abbreviated as: Chip Group)

Academic Year **2026**

Duration of Study	One to Four years
Minimum Credits Required	24 Credits (including at least 6 credits of core courses and 12 credits of required elective courses)
Curriculum and Regulations	I. Students are required to complete thesis seminars over two semesters. However, these seminars shall not be counted toward the required 24 academic credits for graduation. The thesis seminar (book report discussion) course can also be substituted with the college's industry-academic research courses (such as industry mentor courses or corporate internships), but even after the substitution, the industry-academic research courses will not be counted towards the required 24 credits. II. Students are required to take and pass the online course of Academic and Research Ethics by the end of the first semester of their enrollment. This will not be counted for the required credits for graduation. III. Core Courses (Select a minimum of 2 courses from the list below.) The following core courses, if offered by the institute or taught by full-time faculty members of the institute, must be taken as a priority in order to be counted as core course credits. This requirement does not apply to second retakes. 1. Digital Integrated Circuits 2. Computer Architecture 3. Memory Circuits and System 4. Analog Integrated Circuits (Design) 5. Power Integrated Circuits Design 6. Radio-Frequency Integrated Circuits (Design) 7. Advanced Algorithm(or Algorithms) 8. Special Topics in Computer Aided Design 9. Physical Design Automation IV. Required Elective Course (Select a minimum of 4 courses from the list below.) Representative recommended subjects in relevant fields offered by the institute or taught by full-time faculty members of the institute are listed as follows: 1. Advanced EDA Topics 2. Introduction to Amplifier Design for Radio-Frequency Communication Applications Representative recommended subjects in the relevant fields are listed as follows. Please refer to the current semester's course schedule for specific course offerings. 1. Digital Communication Integrated Circuits 2. VLSI Digital Signal Processing 3. Integrated Circuit Design Laboratory 4. Data Conversion Integrated Circuits 5. Advanced Digital Signal Processing 6. Deep Learning 7. VLSI Testing and Design for Testability 8. Machine Learning Intelligent Chip Design

	9. Graph Theory 10. Power Management Integrated Circuit Design and Implementation 11. Special topic on ESD Protection Design in CMOS Ics 12. Introduction to Image Processing 13. Stochastic Processes 14. Professional courses offered by the Industry Academia Innovation School, College of Electrical and Computer Engineering, College of Computer Science, the International College of Semiconductor Technology, the College of Engineering, and the College of Science institutes require the approval of the supervising professor for recognition of professional elective credits. V. If the course title and syllabus overlap by more than 30%, the courses will be considered duplicates, and only one of them may be counted toward the graduation credit requirement. VI. For additional details, refer to the “Master’s Program Academic Regulations” of the Institute of Pioneer Semiconductor Innovation.
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