

Program for Semiconductor Devices, Materials, and Hetero-integration, Graduate School of Advanced Technology, National Taiwan University

Degree Regulations for the Ph.D. Program

- I. Duration of Study: The minimum and maximum duration of study is 2 to 7 years.
- II. Ph.D. Students (Regular Track):
 - i. A minimum of 15 credits is required for graduation (excluding Seminar, Special Project, Academic Ethics, and Internship courses).
 - ii. At least 9 credits of professional electives are required from the program (courses subject to advisor approval).
- III. Direct-entry Ph.D. Students:
 - i. A minimum of 27 credits is required for graduation (excluding Seminar, Special Project, Academic Ethics, and Internship courses).
 - ii. At least 9 credits of professional electives are required from the program (courses subject to advisor approval).
 - iii. At least 15 credits of professional electives are required from the program (courses subject to advisor approval). (Applicable to students admitted from Spring 2025 onward)
- IV. Online learning of Academic Ethics is a required course and does not count toward graduation credits.
- V. Credits from undergraduate courses do not fulfill the minimum graduation credit requirements.
- VI. Proportion of English-Taught Courses:
 - i. For those enrolled in Fall 2022 or Spring 2023, at least 35% of the minimum graduation credits must consist of English-taught courses; Ph.D. Students (Regular Track) must complete at least 5 credits, and Direct-entry Ph.D. Students must complete at least 9 credits.
 - ii. For students admitted in Fall 2023, Spring 2024, Fall 2024, or Spring 2025, at least 50% of the minimum graduation credits must consist of English-taught courses; Ph.D. Students (Regular Track) must complete at least 8 credits, and Direct-entry Ph.D. Students must complete at least 14 credits.
 - iii. For students admitted in Fall 2025, Spring 2026, Fall 2026, or Spring 2027, at least 55% of the minimum graduation credits must consist of English-taught courses; Ph.D. Students (Regular Track) must complete at least 8 credits, and Direct-entry Ph.D. Students must complete at least 15 credits.
- VII. For any issues not covered, please refer to the regulations of Graduate School of Advanced Technology.

Required Curriculum

必修課程 Required Curriculum		
課程名稱 Course Title	學分 Credit Points	備註 Note
研發實習 Internship	3	必修，一學期 1 semester

專題討論 Seminar	1	必修，四學期 4 semesters
專題研究 Special Project	1	必修，在學必修 Every semester
博士論文 Thesis	0	必修，畢業學期當修 Semester of graduation
學術倫理 Academic Ethics	0	必修，不及格者不得申請學位考試 Students who fail the Academic Ethics are Not eligible to apply Defense

Required Competency

必選修課程（六選一） Required Competency (Choose one out of six)		
學位 Degree	課程名稱 Course Title	學分 Credit Points
碩博 Ms. Ph.D.	固態物理學一 Solid State Physics(I)	3
	積體電路工程 Integrated Circuit Technology	3
	半導體元件物理 Physics of Semiconductor Devices	3
	材料熱力學 Thermodynamics of Materials	3
	電子顯微鏡學 Electron Microscopy	3
	電磁學二 Electromagnetics(II)	3

Elective Curriculum

選修課程 Elective Curriculum		
學位 Degree	課程名稱 Course Title	學分 Credit Points
碩博 Ms. Ph.D.	金氧半電容元件 MOS Capacitor Device	3
	量子物理與應用 Principles and Applications of Quantum Physics	3
	先進半導體與顯示技術 Advanced Technologies for Semiconductor and Display	3
	有機光電半導體與元件 Organic Semiconductors for Optoelectronic and Electronic Devices	3
	光電半導體物理 Semiconductor Physics in Optical-electronics	3

選修課程 Elective Curriculum		
學位 Degree	課程名稱 Course Title	學分 Credit Points
碩博 Ms. Ph.D.	半導體雷射原理 Principles of Semiconductor Lasers	3
	微感測器 Micro Sensors	3
	量子電子學一 Quantum Electronics(I)	3
	數位積體電路工程 Digital IC Engineering	3
	記憶體電路技術 Memory Circuit Technology	3
	奈米電子學 Nanoelectronics	3
	磁性材料 Magnetic Materials	3
	材料分析 Materials Analysis	3
	表面分析技術 Surface Analysis Technology	3
	訊號完整度 Signal Integrity	3
	系統構裝電源完整度 Power Integrity for System-in-Packages	3
	電磁相容 Electromagnetic Compatibility	3
	圖解 MOS 元件 Schematic MOS Devices	2
	先進積體電路元件及技術 Advanced IC Devices and Technologies	3
	半導體材料與元件量測技術 Semiconductor Material and Device Characterization	3
	鐵電材料與元件技術 Ferroelectric materials and component technology	3
	半導體產業面面觀、經驗分享與實際演練 Semiconductor Industry Experiences Sharing	2
	異質整合-3D IC 技術簡介與應用 Heterogeneous Integration-3D IC Technology and Application	1

* 課程非於每學年開授，請依本校課程資訊與選課系統公告規劃選課。

Please refer to the current course catalog for the actual course offerings each semester.