

Program for Nanoengineering and Nanoscience, 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（七選一） Required Competency (Choose one out of seven)		
學位 Degree	課程名稱 Course Title	學分 Credit Points
碩博 Ms. Ph.D.	近代物理 Modern Physics	3
	量子力學(一) Quantum Mechanics (I)	3
	量子力學(二) Quantum Mechanics (II)	3
	量子物理 Quantum Physics	3
	奈米科技導論 Introduction to Nanotechnology	3
	奈米科學與工程 Nanoscience and Nanotechnology	2
	精細元件與精密系統 Precision Elements and Systems	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.	材料化學 Materials Chemistry	3
	高等材料力學 Advanced Strength of Materials	3
	流體力學導論 Fundamental of Fluid Dynamics	3
	光學量測系統原理設計 Design Principle of Optical Measurement System	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.	精密量測 Precision Metrology	3
	半導體智慧製造系統概論 Introduction to Semiconductor Intelligent Manufacturing Systems	3
	壓電系統設計與製造 The Design & Construction of Piezoelectric Systems	3
	壓電振動能量擷取導論 Introduction to Piezoelectric Energy Harvesting	3
	微感測器特論 Special Topics on Microsensors	3
	有限元素法 Method of Finite Elements	3
	資料分析方法 Data Analytics	3
	微奈米尺度熱傳 Micro/Nanoscale Heat Transfer	3
	電漿材料製程技術 Plasma Materials Fabrication Technology	3
	生醫奈微米工程 Nano/micro Engineering in Biomedicine	3
	細胞微機電及微流體導論 Introduction to Cellular BioMEMS and Biomicrofluidics	3
	膠體與界面現象 Colloid and Interfacial Phenomena	3
	應用電化學 Applied Electrochemistry	3
	微感測器實務 Practices of Microsensors	3
	奈米材料與應用 Applications of Nanomaterials	3
	能源科學 Energy Science	3
	材料物性分析 Physical Characterizations of Materials	3
	電催化反應導論 Introduction of Electrocatalysis	3
	半導體智慧製造概論 Introduction to Semiconductor Intelligent Manufacturing	3
	半導體設備元件實務 Practice of Semiconductor Equipment Components	1

選修課程 Elective Curriculum		
學位 Degree	課程名稱 Course Title	學分 Credit Points
	半導體製程機台實務 Practice of Semiconductor Manufacturing Tools	1
	低維度半導體物理 Low-Dimensional Semiconductor Physics	3

* 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.