

Department of Materials Science and Engineering MS Study Guide Map in Academic Year 2025

培育材料理論與實務並重，創新研發及宏觀視野之專業工程師。

To cultivate global-perspective and innovative materials engineers who have solid background in both theories and practical assignment.

educational goals

Required Professional

Elective Professional Courses

核心必修

Master's Year 1		Master's Year 2		Professional degree graduates
Seminar(I)	Seminar(II)	Dissertation/Thesis Guide(I)	Dissertation/Thesis Guide(II)	
		Dissertation/Thesis Guide(III)	Dissertation/Thesis Guide(IV)	
			Research Ethics	
			Doctoral dissertation	
Electronic Ceramics	Materials Characterization and Analysis	Transmission Electron Microscopy	Applications of Transmission Electron Microscopy	Further Education: Students can apply to master's and doctoral programs in materials science at home and abroad, or to related research institutes in electronics, electrical engineering, mechanical engineering, chemical engineering, biomedical engineering, etc.
Electronic Materials	Mechanical Property Analysis of Materials	Principle of Materials Corrosion	Advanced Quantum Physics	Employment:
Composite materials	Alloy Strengthening Theories	Surface Treatments and Analysis	Stress Analysis and Measurements	1. Traditional industries: CSC、YUSCO、FCFC、KTM、Cacher、AIDC...。
Thin Film Technology	Nanotechnology on Biomedical Engineering	Advanced Solid State Physics		2. Semiconductor industry : TSMC、Nanya、ASE、UMC...。
Display Technology and Materials	Optoelectronic Materials and Engineering	High Temperature Plastic Deformation		3. Electronics and Optoelectronics Technology Industry : AUO、CMI、Radiant、PTI、UMC、NSP、Compal...。
Principle of Solar Cell and Application	Advanced Mechanical Properties of Materials	Powder Metallurgy		4. Instruments, materials and equipment industry: Fanda、SGS、Sang Guang、Zili、Yi Hong...。
Magnetic Materials	IC Package Processing and Materials	Quantum Chemistry		5. research unit: ITRC、MIRDC、NCSIST、IBMI、NSRRC...。
Welding Metallurgy	Nano-Materials Preparation and Characterization	Diffusion Theory		Job titles: R&D Engineer, Process Engineer, Quality Control Engineer, Sales Engineer, Precision Instrument Operator...。
Synthesis of Particles	Wear and Lubrication of Materials	Introduction to Powder Characteristics		
Amorphous Materials	Technology of Flexible Electronic Materials			
Advanced Polymer Materials	Production of Inorganic Materials			
Electron Microscopic Analysis	The Technologies of Manufacturing Processes for the Semi-conductor Igrat			
Advanced Ceramic Materials	Biomaterials			
Advanced Welding Processes	Nano Materials and Technologies			
Functional Ceramic Materials	Plasma Processing and Application			
Micro-Ceramic Powder Fabrication and Application				
High temperature materials				
Defect Analysis in Materials science				
Defect Chemistry of Materials				
Application of Artificial Intelligence on Materials Science and Engineering				
Advanced Metallurgical Thermodynamics	Advanced solid state physics			
Structure Analysis of Materials	Materials Defects			
Advanced Physical Metallurgy	X-ray Crystallography			

Choose one of the two)