Master Degree Program in Materials Science and Engineering

ADMISSION

The School of Materials Science & Engineering offers graduate program to students pursuing master degree in materials science & engineering. The program aims at bringing about adequate practical training opportunities for engineering graduates and engineering students in sandwich courses to enable them to complete their training and to attain professional status. To reach the target, students must have basic knowledge and profound expertise on materials science & engineering, have the technical ability to the preparation, processing and characterization of advanced materials, have the ability to carry out research works independently and can obtain creative achievements in science or expertise. To begin the master program in materials science and engineering, a student must:

1. Have the academic qualification admitted by Jiangsu University.

2. Have obtained a Bachelor degree in Materials science or a related engineering major..

RESEARCH FIELDS

1. Materials physics and chemistry
   - laser micromachine and engineering application
   - photons and Photoelectric Information Functional Material
   - micro nano material and device fabrication
   - Surface design and preparation of bionics function materials
2. Materials science
   - Materials surface techniques and applications
   - Design and Strength-Toughening technology of materials
   - Functional materials and nano technology
   - Advanced inorganic materials

3. Materials processing engineering

- Preparation and processing technics of advanced composites
- Forming and processing technology of advanced materials
- Advanced interconnection techniques
- laser processing, Tool and Die Technology

DEGREE REQUIREMENTS

The master degree in Materials Science & Engineering is based on successful completion of a minimum of 30 graduate credit hours following an approved program plan. A research proposal, thesis and oral examination in defense of the thesis are required.

CURRICULUM

Courses Category		Course Name	Credit	Term	Remarks
Degree Courses	Public Compulsory	Overview of China	2	1	All
		Chinese	4	1	
	Foundation Theory	Numerical Analysis	3	1	At least 1
		Numerical Statistics	2	1	
		Elemental modern Physics	2	2	At least 1
		Advanced Inorganic Chemistry	2	2	
	Specialized Courses	Materials Chemistry	2	2	At least 2
		Materials Physics	2	2	
		Thermodynamics of Materials	2	2	
		Solid-state Phase Transformation and Diffusion	2	1	
		Polymer Chemistry and Physics	2	2	
		solidification Theory and Technology of Metals	2	1	
		Physical Metallurgy	2	1	
Compensatory Elective Courses		Physical Properties of Materials			Student who got equivalent
		Fundamentals of Inorganic			

		Materials Science			education level before enrollment or interdisciplinary must select two courses
		Principles of Metallography			
		Principles of Material Molding			
		Polymer Chemistry			
Elective Courses	Materials Physics and Chemistry	Research Progress and Development Trend in Materials	2	1	At least 2
		Modern Characterizations in Materials Science	2	2	
		External Field and Performance Analysis of Materials	2	2	
		Functional Materials and The Preparation	2	1	
		Nanomaterials and fabrication technology	2	1	
		Design and Simulation of Materials	2	2	
		Photonic Manufacturing Science	2	1	
		Film Growth and Characterization		2	
		Soft Chemical Synthesis of Materials		1	
		Laser physics		2	
		Laser and Micro Nano Fabrication		2	
		Bionic Technology of Functional Surface	2	2	
	Materials Science	Research Progress and Development Trend in Materials	2	1	At least 2
		Modern Characterizations in Materials Science	2	2	
		External Field and Performance Analysis of Materials	2	2	
		Functional Materials and The Preparation	2	1	
		Nanomaterials and fabrication technology	2	1	
		Design and Simulation of Materials	2	2	
		Reliability and Life Prediction	2	1	

		of Materials			
		Crystal Defects	2	2	
		Advanced Ceramics	2	2	
		High Performance Polymers	2	1	
		Failure Analysis and Prevention	2	2	
		Materials Toughening Technology	1	1	
		Interface Theory and Modern Surface technology	2	2	
		Friction and wear with solid lubricant	1	2	
		An introduction to energy materials	2	2	
		Material deformation and fracture	2	1	
	Materials Processing Engineering	Research Progress and Development Trend in Materials	2	1	At least 2
		Modern Characterizations in Materials Science	2	2	
		External Field and Performance Analysis of Materials	2	2	
		Functional Materials and The Preparation	2	1	
		Nanomaterials and fabrication technology	2	1	
		Design and Simulation of Materials	2	2	
		Principles and Techniques of Advanced Connection	2	1	
		Metal-forming and its Simulation	2	2	
		Advanced Composite Materials and Technologies	2	2	
		Purification of Metals and Alloys and Toughening	2	2	
		Special molding and processing technology	2	2	
		Material Forming Technology and Mould Design	2	2	
		Biological Materials and Preparation Technology	2	2	