

## **Master's Program in Material Science**

### 1. Introduction to Major

Master's Program in Material Science of School of Chemical Engineering and Technology of Tianjin University mainly focuses on the theory and research in polymeric material science. The major fields are on the structural design and development of functional polymer materials, the advanced polymerization technology, the structure and properties of polymeric materials and the computer simulation technology. The related functional polymeric materials include the composite materials, nanomaterials, biomaterials and regenerative medicine.

Research Fields:

- (1) Advanced polymerization technology of polymeric materials and polymer chemical engineering
- (2) Functional polymer materials and characterization methods
- (3) Biomaterials and regenerative medicine
- (4) Polymer design and computer simulation technology

### 2. Objectives

Adhere to the policy of all-round development of morality, intelligence and physique; cultivate talented persons for the field of polymeric materials with basic knowledge in polymer materials science and chemical engineering, and with highly moral quality and scientific style, who loves his/her country and serves the socialist modernization construction.

### 3. Duration

The normal period is 3 years. In order to guarantee education quality, a flexible time plan is also permitted but the period is no less than 2.5 years and no more than 4 years.

### 4. Courses and Credit

Student must complete a total of not less than 27 credit points, in which at least 13 cpts are degree courses, at least 6 cpts compulsory courses, and at least 8 cpts optional ones.

<b>Course Type</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Course Hours</b>	<b>Credit Points</b>	<b>Note</b>
Degree Courses	S131G001	Theory of Marxism	90	3	
	S131GF01	Listening and Speaking	60	2	Not less than 2 Cpts
	S131GF06	Advanced Listening and Speaking	60	2	

	S131GF07	Integrated English	60	2	
	S131GA03	Numerical Analysis in Engineering and science	32	2	
	S131GA04	Stochastic Processes	32	2	
	S207G001	Approaches to Materials Synthesis and Processing	32	2	
	S207G016	Progress in Polymer Science	32	2	
Compulsory Courses	S207R004	Characterization and analytical methods for polymeric materials	32	2	Not less than 4 Cpts
	S207G018	Functional Materials	32	2	
	S207G017	Biomedical Polymers	32	2	
	S207R007	Nanotechnology and Composite Materials	32	2	
	S207R002	Experimental Skills / Social Practice		1	
	S207R001	Academic Seminars		1	
Optional Courses	S207E131	Soft Matter and Computer Simulation Methods	32	2	Not Less Than 8 Cpts
	S207E130	Artificial Organ and Tissue Engineering	32	2	
	S207E137	Polymers for Pharmaceutics and Drug Delivery Systems	32	2	
	S207E120	Polymerization Catalysis	32	2	
	S207G012	Advanced Organic Synthesis of Fine Chemicals	32	2	
	S207E094	Pharmaceutics engineering	32	2	
	S207RP01	Life Sciences and Biotechnology (SCET)	32	2	
	S207G069	Modern Separating and Analyzing	32	2	
	S207G021	Principles of Transport Processes (I+II)	40	2	
	S207G009	Molecular and cellular biology	32	2	
	S207G027	Chemical Engineering	32	2	
		Other public optional courses			