

Master's Program in Chemical Engineering

1. Introduction to Major

The chemical engineering discipline at Tianjin University is recognized as “state key discipline”. The School of Chemical Engineering is among the first batch of schools approved to offer Master’s degree and Ph.D. degree programs. The School is also home to the United State Key Laboratory of Chemical Engineering, National Industrial Crystallization Engineering Research Center, National Distillation Engineering Research Center and Tianjin Key Laboratory of Membrane Science and Desalination Technology. Over 100 professors and associate professors are currently supervising postgraduate students enrolled in this program, among them there is one academician from National Science Academy and one from National Engineering Academy. More than 100 research projects funded by NSFC, MOST and other institutions and enterprises are being currently carried out. Awards won by the faculty members in recent years include State Technical Innovation Award, State Technology Progress Award and many others. We keep very strong in the areas of mass transfer and separation, distillation engineering, industrial crystallization and particle engineering and are robust in membrane separation, new energy materials and reaction engineering.

Main research areas include: 1. Theory on interfacial transport and distillation technology; 2. Industrial crystallization and particle science and engineering; 3. Membrane processes and environmental chemical engineering; 4. Alternative energy chemical engineering and technologies for high efficiency utilization of resources; 5. Bio-catalysis and reaction engineering.

2. Objectives

Students enrolled to the Master of Chemical Engineering program will be trained to meet the requirement of the country’s modernization, to build solid knowledge basis in chemical engineering, to understand relevant concepts, theories and principles, and to master fundamental experimental skills. They should be able to design chemical processes, to carry out application-oriented basic research and technical development in the wider engineering context. They should also be able to demonstrate possessing creative and innovative ability, having international vision and transferable skills. They are expected to become highly competent in the field of chemical engineering.

3. Duration

It usually takes three years to finish the program, in which the first year is spent on coursework.

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.

Course Type	Course Code	Course Name	Course Hours	Credit Points	Note	
Degree Courses	S131G001	Theory of Marxism	90	3		Not Less Than 13 Cpts
		First Foreign Language	60	2		
	S131GA03	Engineering and Scientific Calculation	32	2		
	S131GA07	Optimization Methods	32	2		
	S207G021	Principles of Transport Processes (I+II)	40	2	Choose Either	
	S207G022	Principles of Transport Processes (II)	40	2		
	S207G028	Chemical Reaction Engineering(I+II)	40	2	Choose Either	
	S207G029	Chemical Reaction Engineering(II)	40	2		
Compulsory Courses	S207G027	Chemical Engineering Thermodynamics	32	2	Choose Either	Not Less Than 6 Cpts
	S207G011	Advanced Chem. Eng. Thermodynamics	32	2		
	S207G002	Mass Transfer Processes	32	2		
	S207G025	Chemical Separation Process (Bi-lingo)	32	2		
	S207R002	Experimental Skills / Social Practice		1		
	S207R001	Academic Seminars		1		
Optional Courses	S207G039	Principles of Membrane Science and Technology	32	2	Not Less Than 8 Cpts	
	S207E022	Analysis of complex materials	32	2		
	S207E085	Special Topics on Biotechnology and Bioengineering	32	2		
	S207E011	Multistage Separation Theory	32	2		

	S207E039	Process Systems Engineering Topics	32	2	
	S207E026	Engineering Optimization Method	32	2	
	S207E027	Industrial Crystallization & Particulate Process	32	2	
	S207E077	Principle of adsorption Process	32	2	
	S207E078	Adsorption and adsorbent	32	2	
	S207E034	Computer Simulation of Separation Processes	32	2	
	S207E014	Multiphase Fluidization and Heat Transfer	32	2	
	S207E053	Pharmaceutical Crystal Chemistry	32	2	
	S207E038	Computational Fluid Dynamics to Chemical Processes	32	2	
	S207G008	Non-traditional Reaction Engineering	32	2	
	S207E123	Optimization of Process Energy Systems (Bi-lingo)	32	2	

5. Degree Dissertation

Work in regard to degree dissertation is carried out in compliance with the relevant regulations by Tianjin University.