Master of Engineering's Program in Chemical Engineering and Technology Field

1. Introduction to Research Field

Chemical Technology is a green-chemical-product-targeted engineering science, providing technologically advanced and economically reasonable approaches, principles, equipments and technologies for chemical industry. Chemical Technology, as a second-grade discipline, is of great significance in the first grade discipline "Chemical Engineering and Technology", directly facing the national economy, national defense construction and social development. The main research areas of Chemical Technology include energy chemical engineering, materials chemical engineering, organic chemical engineering, environmental chemical engineering, polymer chemical engineering and inorganic chemical engineering, etc. It not only covers the traditional basic areas, but also keeps cultivating new branches through integration with other disciplines including materials, energy, biotechnology, medicine and environment. Chemical Technology is such a discipline that has a long history and has made great contributions to science, technology and economical development. It is also an indispensable discipline full of vitality in the new century.

2. Objectives

The overall objective of the Master degree program in Chemical Technology is to prepare students for professional practice in the field of chemical technology, and to provide a foundation in the fundamental knowledge of chemical technology. Students are required to build a solid knowledge basis in chemical technology including basic concepts, theories and principles, to gain research skills, and to gain problem-solving ability and the ability to translate theoretical knowledge into practice. The master degree in chemical technology is awarded in recognition of mastery in chemical technology and upon demonstration of an ability to make creative contributions to knowledge in chemical technology.

3. Cultivation Mode and Duration

Three years including course learning for 6-8 months.

4. Research Field Contents

Research Fields：

（1）C1 chemistry and technology;

（2）Green production of functional chemicals and new materials;

（3）Biomass energy and chemical processing of biomass.

5. Courses and Credit

Students must complete a total of not less than 32 credit points, in which at least 16 cpts are degree courses, at least 8 cpts compulsory courses and at least 8 cpts optional ones.

Course Type	Course Code	Course Name		Course Hours	Credit Points	Note
Degree Courses	S131A033	Science and Technology Theory		40	2	
		First Foreign Language		60	2	
	S131A035	Foundation of Engineering Mathematics		80	4	
	S209RC01	Modern Management	Choose Either	32	2	
	S402EP01	The Retrieval and Utilization of Internet Information Resources		24	2	
	S207G011	The Higher Chemical Engineering Thermodynamics	Choose Either	32	2	
	S207G027	Chemical engineering thermodynamics		32	2	
	S207G024	Chemical Separation Processes		32	2	Not Less Than 4 Cpts
	S207G038	Green Chemical Technology		32	2	
	S207G044	Organic catalytic reaction engineering		32	2	
	S207G045	Practical Heterogeneous Catalysis		32	2	
Compulsory Courses		Academic Report and Communication (4 Times)			2	8 Cpts
		Engineering Practice and Experimental Skills			6	
Optional Courses	S207E138	Theory and application of analytical instrument		32	2	Not Less Than 8 Cpts
	S207E134	Advanced Separation Materials and Applications		32	2	
	S207E135	Chemistry of Advanced Hydrocarbon Fuels		32	2	
	S207E121	Functional Materials Chemistry and Technology		32	2	
	S207E129	Energy Chemistry and Technology		32	2	
	S207E126	Process Intensification and Energy Savings		24	1.5	
	S207E127	Chemical Process Design Principles		32	2	
	S207E128	Fine Chemical Industry and Engineering		32	2	
	S207E085	Special Topics in Biotechnology and Bioengineering		32	2	
	S207E036	Analysis and simulation of chemical processes		32	2	
	S207E042	Advance in Chemical Technology		24	1.5	
	S207E064	Introduction of Clean Production		24	1.5	
	S207E088	New Carbon Materials		24	1.5	

	S207EP01	The choice of problem and the dissertation of writing	16	1	
	S207E004	Supercritical Fluid Technology	24	1.5	

6. Degree Dissertation

Comply with relative regulations Issued by Tianjin University.