

Master's Program in Pharmaceutical Engineering

1. Introduction to Major

The Pharmaceutical Engineering (ParmE) in Tianjin University is a new interdisciplinary of biotechnology, chemistry and pharmaceuticals merged with engineering. This program began in the fall of 2004 and more than fifty master students are enrolled each year.

The PharmE program offers the interdisciplinary curriculum and research environments for training master students in the scientific knowledge and technical ability to meet the needs required by the pharmaceutical industry. The pharmaceutical pipeline involves in the drug discovery and development, pharmacokinetics and drug evaluation, chemical and biosynthetic technology, pharmaceutical separation and purification, and manufacturing facility and plant design. Creativity and independent thinking will be developed via students working on the pharmaceutical projects and solving the scientific and technological, and engineering problems.

The department provides the extensive research laboratories and centers, including Systems Bioengineering of Ministry of Education, Tianjin Industrial Center for Bio- and Chinese Traditional Medicine Modernization, Tianjin Key Laboratory of Bio- and Pharmaceutical Engineering.

The major orientations of research interest are: (1) biopharmaceuticals and pharmacokinetics, (2) pharmaceutical separation and facilities (3) modernization of Chinese traditional medicines and pharmaceuticals; (4) drug design and chemical synthesis.

2. Objectives

Graduate students are obligated to have the fundamental theory and systematic knowledge of pharmaceutical engineering, with the experimental ability and methodology how to do research on drugs. They are familiar to the national regulatory laws on drug design, development, manufacturing and environmental issues. They keep abreast of current development in pharmaceutical science, technology, and facilities at home and abroad. They have abilities of rigorous scholarship and willingness of working style down to earth. After graduation, they would be competent to do the work on the scientific and technological innovation in pharmaceutical engineering.

3. Duration

Three years are generally required to complete this program, of which one year is for course study.

4. Courses and Credit

Students must complete a total of no less than 27 credit points, in which at least 13 cpts for three degree courses, at least 6 cpts for the compulsory courses, and at least 8 cpts for the 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
	S131GF07	First Foreign Language	60	2	
	S131GA07	Optimization methods	32	2	
	S131GA03	Engineering and Scientific computing	32	2	
	S207G043	Current pharmaceutical technology	32	2	
	S207G015	Advanced pharmaceutical separation engineering	32	2	

Compulsory Courses	S207G046	Seminar on Frontier of Pharmaceutical Engineering	32	2	Not Less Than 6 Cpts
	S207E094	Pharmaceutics engineering	32	2	
	S207R002	New Experimental Technology of Modern Chemical Engineering		1	
	S207R001	Academic Reports		1	
Optional Courses	S207E071	Biopharmaceutical Engineering	32	2	Not Less Than 8 Cpts
	S207E080	Cell Culture Engineering	32	2	
	S207G004	Metabolic Engineering	32	2	
	S207E089	Research and Development of New Drugs	32	2	
	S207E018	Molecular Modeling: Principle and Application	32	2	
	S207E048	Genetic Engineering Medicine	32	2	
	S207E092	Spectroscopy Analysis of Drug Structure	32	2	
	S207RP01	Life Sciences and Biotechnology (SCET)	32	2	
	S207EP01	Topic choosing and Writing of Dissertation	16	1	
	S402EP02	Lectures of practical patents	16	1	

5. Degree Dissertation

The master dissertation must obey the rules of TJU's regulations. [Publishing articles must meet the requirements of SCET's provision]