Undergraduate Program for Chemical Engineering

I. Credit and Key Courses

1. The total credits for the program are no less than **205.5**, in which no less than **76.5** credits is for University General Education Courses (Type A Courses), **57** credits for Specialized Core Courses (Type B Courses), no less than **21** credits for Specialized Elective courses (Type C Courses), no less than **18** credits for Specialized Extension Courses (Type D Courses), and **33** credits for Intensive practicum or curriculum project.
2. The key courses which will be instructed in the 4 years include:

Inorganic and Analytical Chemistry	Organic Chemistry
Physical Chemistry	Process Engineering Principles
Basic Chemical Equipment Mechanical	Chemical Meters and Automation
Chemical Reaction Engineering	Chemical Engineering Thermodynamics
Chemical Technology	Fine Chemical Technology
Industrial Catalysis	Separation Engineering

II. Program Objectives

For students who aspire to a professional career with chemical engineering, our undergraduate courses in Chemical engineering provide a firm and broad-based education, with a provision for a substantial amount of specializations in the elective courses. Basic theory, skills and research methods of chemical engineering will be carried out. After four-year education, the students should have the ability to serve the fundamental industry with modern scientific technology of chemistry and engineering, be able to do scientific research, product and process design, technical administration and so on.

III. Requirements

Abide by the relevant policies and decrees formulated by the Chinese government, and the rules and regulations of Jiangsu University (JU).

Study hard and have good moral character. Respect the teaching staff and Chinese traditions and customs.

Develop scientific attitude in research and study and stress the combination of theory and practice. Have a good command of basic theories and systematic knowledge in the field of Communication Engineering.

Be in good health condition.

IV. Curriculum and Credit Distribution

⑴Type A Courses(≥76.5 credits, students should select at least 2 credits from the elective courses listed below)

Course	Term	Credit	Total Hours	Theory Hours	Practice Hours	Type
Chinese-Ⅰ	1	12	180	270	0	Required
Chinese-Ⅱ	2	6	90	75	15	Required
Chinese-Ⅲ	3	6	90	75	15	Required
Chinese-Ⅳ	4	6	90	75	15	Required
Overview of China	1	4	60	45	15	Required
Sports - Ⅰ	1	2	30	10	20	Required
Sports-Ⅱ	2	2	30	10	20	Required
Sports-Ⅲ	3	2	30	10	20	Required
Sports-Ⅳ	4	2	30	10	20	Required
Advanced Mathematics	1,2	11	165	165	0	Required
Linear Algebra	3	2	30	30	0	Required
Probability Theory	4	3	45	45	0	Required
College Physics B	2,3	6	90	90	0	Required
Physics Experiments B	2,3	2.5	38	0	38	Required
Fundamentals of Computer Operation and Programming (C Language)	2,3	8	120	80	40	Required
Chinese Fine Arts	2	2	30	30	0	Elective
Chinese Music	3	2	30	30	0	Elective
Total A		**78.5**	**1178**	**960**	**218**	

Type B Courses(57 credits)

Course	Term	Credit	Total Hours	Theory Hours	Practice Hours	Type
Inorganic and Analytical Chemistry	1	6	90	90	0	Required
Organic Chemistry	2	5	75	75	0	Required
Chemical Engineering Cartography	3	4	60	48	12	Required
Physical Chemistry	3.4	6	90	90	0	Required
Instrumental Analysis	4	2	30	30	0	Required
Basic Chemical Equipment Mechanical	4	4	60	60	0	Required
Inorganic and Analytical Chemistry Experiments	1	4	60	0	60	Required
Organic Chemistry Experiments	2	2	30	0	30	Required
Physical Chemistry Experiments	4	3	45	0	45	Required
Instrumental Analysis Experiments	4	2	30	0	30	Required
Process Engineering Principles	5	6	90	90	0	Required
Lab Work for Process Engineering Principles	5	3	45	0	45	Required
Electronics in Electrical Engineering(A)	5,6	5.5	85	85	0	Required
Electronics in Electrical Engineering(A) Experiments	6	1.5	20	0	20	Required
Chemical Meters and Automation	6	3	45	35	10	Required
Total B		**57**	**855**	**603**	**252**	

Type C Courses(≥21 credits, students should select at least 2 credits from the elective courses listed below)

Course	Term	Credit	Total Hours	Theory Hours	Practice Hours	Type
Chemical Engineering Design	5	2	30	30	0	Required
Fine Chemical Technology	5	2	30	30	0	Required
Fine Chemical Technology Experiments	5	3	45	0	45	Required
Chemical Technology	6	2	30	30	0	Required
Chemical Reaction Engineering	6	3	45	45	0	Required
Chemical Engineering Thermodynamics	6	2	30	30	0	Required
Industrial Catalysis	7	2	30	30	0	Required
Special Experiment of Chemical Engineering	7	3	45	0	45	Required
Principle of Transport Processes	5	2.5	38	38	0	Elective
Separation Engineering	7	2	30	30	0	Elective
Total C		**23.5**	**353**	**263**	**90**	

Type D Courses：(≥18 credits, students should select at least 18 credits from the elective courses listed below)

Course	Term	Credit	Total Hours	Theory Hours	Practice Hours	Type
Materials Chemistry	6	2	30	30	0	Elective
Petrochemical Engineering Technology	6	2	30	30	0	Elective
Functional Materials	6	2	30	30	0	Elective
Polymer Chemistry and Physics	6	3	45	45	0	Elective
Fine Organic Synthesis Technology	6	2	30	30	0	Elective
Principles and Applications of Reactor Design	7	2	30	30	0	Elective
Chemical Systems Engineering	7	2	30	30	0	Elective
Polymerization Reaction Engineering	7	2	30	30	0	Elective
Introduction of Chemical Environmental Engineering	7	2	30	30	0	Elective
CAD for Chemical	7	2	30	30	0	Elective
Chemistry of Paper Chemicals	7	2	30	30	0	Elective
Chemical Corrosion and Protection	7	2	30	30	0	Elective
Introduction to the Safety of Chemical Processes	7	2	30	30	0	Elective
Total D		**27**	**405**	**405**	**0**	

Type E Courses: Practice (33 credits)

Course	Term	Credit	Weeks	Remark
Freshman Transition	1	1	1	Required
Manufacturing Practice	2	2	2	Required
Chemical Engineering Cognition Practice	3	2	2	Required
Comprehensive Chemistry Experiments	4	2	2	Required
Training on Chemical Experimental Skill	4	1	1	Required
Course Work of Process Engineering Principles	5	2	2	Required
Engineering Practice	6	3	3	Required
Chemical Engineering Technology and Design of Equipments	7	4	4	Required
Graduation Design (Thesis)	8	16	16	Required
Total E		**33**	**33**	

V. The Allocation of Credits and course

Term	Course	Credit	Required Credit	Elective Credit	Practice Credit
1	Chinese-Ⅰ	12	35	0	1
	Overview of China	4			
	Sports -Ⅰ	2			
	Freshman Transition	1			
	Advanced Mathematics	6			
	Inorganic and Analytical Chemistry	6			
	Inorganic and Analytical Chemistry Experiments	4			
2	Chinese-Ⅱ	6	31.5	2	2
	Sports-Ⅱ	2			
	Advanced Mathematics	5			
	Fundamentals of Computer Operation and Programming(C Language)	4			
	Chinese Fine Arts	2			
	College Physics B	4			
	Physics Experiments B	1.5			
	Organic Chemistry	5			
	Organic Chemistry Experiments	2			
	Manufacturing Practice	2			
3	Chinese-Ⅲ	6	26	2	2
	Sports-Ⅲ	2			
	Fundamentals of Computer Operation and Programming(C Language)	4			
	Chinese Music	2			
	Linear Algebra	2			
	College Physics B	2			
	Physics Experiments B	1			
	Chemical Engineering Cartography	4			
	Physical Chemistry	3			
	Chemical Engineering Cognition Practice	2			
4	Chinese-Ⅳ	6	29	0	3
	Sports-Ⅳ	2			
	Probability Theory	3			
	Physical Chemistry	3			
	Physical Chemistry Experiments	3			
	Basic Chemical Equipment Mechanical	4			
	Instrumental Analysis	2			
	Instrumental Analysis Experiments	3			
	Comprehensive Chemistry Experiments	2			
	Training on Chemical Experimental Skill	1			

5	Process Engineering Principles	6	21.5	2.5	2
	Lab Work for Process Engineering Principles	3			
	Electronics in Electrical Engineering(A)	3.5			
	Chemical Engineering Design	2			
	Fine Chemical Technology	2			
	Fine Chemical Technology Experiments	3			
	Principle of Transport Processes	2.5			
	Course Work of Process Engineering Principles	2			
6	Chemical Technology	2	16.5	11	3
	Chemical Reaction Engineering	3			
	Chemical Engineering Thermodynamics	2			
	Electronics in Electrical Engineering(A)	2			
	Electronics in Electrical Engineering(A) Experiments	1.5			
	Chemical Meters and Automation	3			
	Materials Chemistry	2			
	Petrochemical Engineering Technology	2			
	Functional Materials	2			
	Polymer Chemistry and Physics	3			
	Fine Organic Synthesis Technology	2			
	Engineering Practise	3			
7	Industrial Catalysis	2	9	18	4
	Special Experiment of Chemical Engineering	3			
	Separation Engineering	2			
	Principles and Applications of Reactor Design	2			
	Chemical Systems Engineering	2			
	Polymerization Reaction Engineering	2			
	Introduction of Chemical Environmental Engineering	2			
	CAD for Chemical	2			
	Chemistry of Paper Chemicals	2			
	Chemical Corrosion and Protection	2			
	Introduction to the Safety of Chemical Processes	2			
	Chemical Engineering Technology and Design of Equipments	4			
8	Graduation Design (Thesis)	16	16	0	16
Total		**220**	**184.5**	**35.5**	**33**