

化学工程专业留学生本科培养方案（英文班）

Bachelor Program for Foreign Students Majoring in Chemical

Engineering (English-taught Group)

（专业代码：081301）

(Major code:081301)

一、培养目标

1. Training Objective

面向化工行业，培养符合石油石化行业发展需求，具有良好的职业道德和社会责任感，掌握化工生产工艺过程及设备的基本规律和原理，具备从事化工生产控制与管理、化工产品和过程研究与开发、化工装置设计与放大等能力，具有创新意识和国际视野的化工工程技术人才。

The training object of chemical engineering major for students is service-oriented to chemical engineering fields. The graduated students should not only master the roles and principles of chemical engineering processes and the related equipment, but also have good professional ethics and social responsibility. Furthermore, the graduated students should own the ability to work in chemical engineering manufacture control and management, production and process research, equipment design and process scale-up. The most important objective is to develop chemical engineering talents with innovative consciousness and international vision.

二、专业核心课程

2. Core Courses of Chemical Engineering Major

化工原理、化工热力学、反应工程、化工工艺学、化工产品开发、现代分离技术、化工设计、石油炼制工程。

Principles of Chemical Engineering, Chemical Engineering Thermodynamics, Chemical Reaction Engineering, Technology of Chemical Engineering, Chemical Product Development, Modern Isolation Technology, Chemical Engineering Design, Petroleum Refining engineering

三、毕业要求

3. Graduation requirements

学生毕业时应达到以下 12 条要求：

The students should meet the following requirements when they graduate:

要求 1.工程知识：能够将数学、自然科学、工程基础和专业知用于解决复杂化工问题。

Requirement 1. Engineering Knowledge: Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization to the solution of complex chemical engineering problems.

要求 2.问题分析：能够应用数学、自然科学和工程科学的基本原理，识别、表达、并通过文献研究分析复杂化工问题，以获得有效结论。

Requirement 2. Problem Analysis: Identify, formulate, research literature and analyse complex chemical engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

要求 3.设计/开发解决方案：能够设计针对复杂化工问题的解决方案，设计满足特定需求的系统、单元（部件）或工艺流程，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。

Requirement 3. Design/ development of solutions: Design solutions for complex chemical engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

要求 4.研究：能够基于科学原理并采用科学方法对复杂化工问题进行研究，包括设计实验、分析与解释数据、并通过信息综合得到合理有效的结论。

Requirement 4. Investigation: Conduct investigations of complex chemical engineering problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

要求 5.使用现代工具：能够针对复杂化工问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具，包括对复杂化工问题的预测与模拟，

并能够理解其局限性。

Requirement 5. Modern Tool Usage: Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex chemical engineering problems, with an understanding of the limitations.

要求 6.工程与社会：能够基于化工相关背景知识进行合理分析，评价专业工程实践和复杂工程问题解决方案对社会、健康、安全、法律以及文化的影响，并理解应承担的责任。

Requirement 6. The Engineer and Society: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex chemical engineering problems.

要求 7.环境和可持续发展：能够理解和评价针对复杂化工问题的专业工程实践对环境、社会可持续发展的影响。

Requirement 7. Environment and Sustainability: Understand and evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental contexts.

要求 8.职业规范：具有人文社会科学素养、社会责任感，能够在工程实践中理解并遵守工程职业道德和规范，履行责任。

Requirement 8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of chemical engineering practice.

要求 9.个人和团队：能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。

Requirement 9. Individual and Team work: Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.

要求 10.沟通：能够就复杂化工问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。并具备一定的国际视野，能够在跨文化背景下进行沟通和交流。

Requirement 10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

要求 11.项目管理：理解并掌握化工管理原理与经济决策方法，并能在多学科环境中应用。

Requirement 11. Project Management and Finance: Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. 要求 12.终身学习：具有自主学习和终身学习的意识，有不断学习和适应发展的能力。

Requirement 12. Lifelong learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

四、毕业去向

4. Graduating Students' Career Position

常州大学化学工程专业已通过中国工程教育认证。根据华盛顿协议，取得常州大学化学工程专业毕业证书得到华盛顿协议成员国的认可，包括美国、英国、加拿大、澳大利亚、日本、新加坡等。

The chemical engineering major in Changzhou University have been certified by the China Engineering Education Accreditation Association (CEEAA). According to the **Washington Accord**, an International Professional Engineers Agreement, the diploma of chemical engineering major in Changzhou University was admitted by the member country of the Washington accord, including USA, UK, Canada, Australia, Japan, Singapore, etc.

本专业的就业领域涉及化工及相关领域，毕业生可以从事化工、炼油、医药、能源、冶金、材料、环境、外贸等领域的科研、开发、设计、生产及管理工作。

化学工程专业学习提高了学生分析和解决问题的能力，这对于就业非常重要。本专业 60%-70%的毕业生就职于大型国有企业、民营企业、政府部门以及研究

机构。约有 20%-30%的毕业生继续修读研究生学位，读研的学生通常就职于研究机构或者高校。

The study of engineering fosters the development of quantitative, analytical, and problem-solving skills which are very useful in many different career areas. On average, 60% to 70% of graduates with a Bachelor of Chemical Engineering degree choose employment in large state-owned enterprises, private enterprise, government laboratories and research centers. Approximately 20% to 30% of the chemical engineering graduates will choose to continue their education toward a master degree. Students who earn advanced degrees in engineering usually pursue a career in advanced research or as a faculty member in a college of engineering.

五、毕业学分要求

5. Credit requirements for graduation

本专业毕业总学分要求为 120 学分。学分与学时分配比例见下表：

The total credits required for graduation of this major are 120 credits. The proportion of credits and credit hours is shown in the following table:

类别 Category		学分数 Credits	学时数 Hours	学分比(%) Credit ratio (%)	学时比 (%) Credit hour ratio (%)
必修 Compulsory	基础课程 Basic courses	45	728	37.7	46.4
	专业基础课程 Professional foundation course	44.5	750	37.2	45.8
	专业课程 Professional courses	10	160	8.4	7.8
	小计 Subtotal	99.5	1638	83.3	100
	实践环节小计 Practice subtotal	20		16.7	
	合计 Total	119.5	1638	100.0	100.0
	理论教学 Theory teaching				

(二) 专业基础课

(2) Specialized basic courses

课程 代码 Course code	课程名称 Course name	总学 时数 Total credit hours	实践与实 验学时数 Practice and laboratory hours	学分数 Credits	各学期周学时 Weekly hours of each semester								
					1 On e	2 Two	3 Three	4 Four	5 Five	6 Six	7 Seven	8 Eight	
10011-2#	无机与分析化学 Inorganic and Analytical chemistry	72		4.5	4/3 2 2.0	3/40 2.5							
11721035 11722045	无机与分析化学 实验 Experiment of Inorganic and Analytical chemistry		70	3.5	1.5	2.0							
10090081	有机化学 Organic Chemistry	64		4.0			4/64 4.0						
11821035 11822025	有机化学实验 Experiment of Organic Chemistry		40	2.0			1.0	1.0					
10211061 10212041	物理化学 Physical Chemistry	80		5.0			3.0	2.0					
15591025 15592025	物理化学实验 Experiment of Physical Chemistry		40	2.0				1.0	1.0				
14011071 14012081	化工原理 Principles of Chemical Engineering	120		7.5				3.5	4.0				
14031-2#	化工原理实验 Experiment for Principles of Chemical Engineering		40	2.0				1.0	1.0				

(四) 实践环节 (S 类课程)

(4) Practical Training

课程代码 Course code	实践性环节名称 Name of Practical Link	周数 Weeks	学分数 Credits	学期 Semester	起止周数 Start and Stop weeks
32150027	金工实习 Metal Craft Practice	1	1.0	3	17
14150027	仿真实习 Imitation Practice	1	1.0	6	18
14071027	化工设计 1 Chemical Engineering Design (I)	1.0	1.0	4	18
14072027	化工设计 2 Chemical Engineering Design (II)	1.0	1.0	5	18
11510047	化工专业实验 Major Experiment of Chemical Engineering	40 学时	2.0	7	1-11
11680247	毕业论文 Graduation Thesis	12	12.0	8	1-12
11520047	毕业实习 Graduation Practice	2	2.0	8	14-15
	总计 Total		20		