石油工程专业留学生本科培养方案（英文班）

Bachelor Program for Foreign Students Majoring in Petroleum Engineering (English-taught Group)

（专业代码：081502）
(Major code: 081502)

一、培养目标

培养适应于石油与天然气行业及其相关领域经济建设需要，具有较深人文社会科学素养和较强社会责任感，遵守工程职业道德和规范，具备良好心理素质，具有环保、安全和可持续发展意识，拥有创新创业精神、管理能力和团队协作能力，具有国际视野，终身学习意识与解决复杂工程问题能力强，能从事石油与天然气工程设计与施工、生产运行与管理、技术应用与产品开发、管理与运维等方面工作的高级应用型工程技术人才。

1. Objective

Cultivate advanced practical engineering personnel who are capable of design and construction, operation and management of production, technology application and product development, management and operation of oil and gas engineering projects with qualities below: adapted to economic needs of oil and gas industry and related fields, possess deep humanities and social science literacy and a strong sense of social responsibility, abide by the engineering professional ethics and norms, have good psychological quality, have the consciousness of environmental protection, safe and sustainable development, possess innovative entrepreneurial spirit, management and the team cooperation ability, possess international vision, consciousness of lifelong study, being able to solve complicated engineering problem.

学生毕业后可在石油与天然气行业及其相关领域的单位工作或继续深造，并在工作岗位上经过 5 年左右的实践锻炼和自主学习后，成长为石油与天然气行业及其相关领域的工程设计与施工、生产运行与管理、技术应用与产品开发、软件设计与开发、智能应用系统的集成、管理与运维等方面的核心骨干人员。

Students can work in oil and gas industry and related fields or continue their education after graduation, and after five years of practice and self-learning at work

grow up to be key cadres in oil and gas industry and related fields such as engineering design and construction, operation and management of production, technology application and product development, software design and development, integration, management and operation of intelligent application system.

•钻井工程师，能够设计和监督油气井的钻井过程；

• Drilling engineer who is able to design and supervise the process of drilling of oil and gas Wells.

•采油工程师，能够设计采油、输送及存储油气的设施；

• Production engineer who can design facilities of production, transportation and storage.

•油藏工程师，能够评估和预测油气藏生产过程、设计生产工艺及进行经济评估

• Reservoir engineer who can evaluate and predict reservoir production process, design production process and conduct economical evaluation.

•市场工程师，能够完成石油和天然气产品的销售和运输；

• Marketing engineer who is capable of selling, transporting oil and gas products.

•研究工程师，研究改善生产、油藏采收过程、性能和处理过程的新方法

• Research engineers who can develop new methods of improving process of production, reservoir recovery as well as process of performance and treatment.

二、毕业要求

2. Graduation Requirements

毕业生应获得以下几方面的知识和能力：

Graduates should acquire the following knowledge and abilities:

要求 1：具有较好的人文社会科学素养、良好的工程职业道德和团队合作意识；

Requirement 1: Possess good humanities and social science literacy, good engineering professional ethics and team work consciousness.

要求 2：掌握与石油工程和油气储运工程专业相关的基础科学理论知识，具备一定的经济和管理知识；

Requirement 2: Master basic scientific theoretical knowledge related to petroleum engineering and oil and gas storage and transportation engineering, and have certain economic and management knowledge.

要求 3：掌握石油工程专业领域的基础理论和专业知识，了解钻井与完井、采油、油气田开发工程与工艺及油气储运工程的前沿发展现状和趋势；

Requirement 3: Master the basic theory and professional knowledge of the field of petroleum engineering, understand the status and trend of cutting-edge of drilling and completion, development engineering and technology of oil recovery, oil and gas field as well as oil and gas storage and transportation engineering.

要求 4：受到石油工程和油气储运工程实验技能、工程实践、科学研究和工程设计方法的基本训练，具有对新产品、新工艺、新技术和新设备进行研究、开发和设计的初步能力；

Requirement 4: Get basic training in experimental skills, engineering practice, scientific research and engineering design methods of petroleum engineering and oil and gas storage and transportation engineering; Obtain preliminary ability of research, develop and design new products, new processes, new technologies and new equipment.

要求 5：获得工程实验方法和科学思维方法的基本训练，具有科学思维方法及综合运用所学科学理论和技术手段来解决复杂工程实际问题的能力，在设计过程中能综合考虑经济、环境、法律、安全、健康、伦理等因素；

Requirement 5: Get basic training of engineering experimental method and scientific thinking method; obtain ability of solving complicated practical engineering problems by scientific thinking method and comprehensive application of learned scientific theories and technical means, being able to take economic, environmental, legal, safety, health, ethics and other factors into comprehensive consideration during design process.

要求 6：掌握文献检索、资料查询和运用现代信息技术获取相关信息的基本方法，具有独立获取新知识的能力；

Requirement 6: Master the basic methods of literature retrieval, data query and

obtain relevant information using modern information technology, possess the ability of acquiring new knowledge independently.

要求 7：了解与石油工程和油气储运工程专业相关的生产、设计、施工、安全、环境保护和可持续发展等方面的法律法规，能正确认识工程对于客观世界和社会的影响；

Requirement 7: Understand laws and regulations related to production, design, construction, safety, environmental protection and sustainable development of petroleum engineering and oil and gas storage and transportation engineering, and be able to correctly understand the impact of engineering on the objective world and society.

要求 8：掌握基本的创新方法，具有创新意识和一定的组织管理能力、较强的表达能力与人际交往能力，具有终身学习意识和社会适应能力；

Requirement 8: Master basic innovative methods, possess innovative consciousness and certain organizational management ability, strong expression ability and interpersonal skills, have lifelong learning awareness and social adaptability.

要求 9：掌握计算机理论知识，能够应用石油工程和油气储运工程常用软件进行钻井与完井工程、采油工程、油藏工程分析计算及管道和油库设计的基本技能；

Requirement 9: Master theoretical knowledge of computer, be able to use the software commonly used in petroleum engineering and oil and gas storage and transportation engineering for analysis and calculation of drilling and completion engineering, oil recovery engineering, reservoir engineering, as well as pipeline and oil depot design.

要求 10：掌握中文，具有较强的听、说、读、写能力，能查阅专业文献，较熟练地阅读本专业书刊。

Requirement 10: Master Chinese, have ability of listening, speaking, reading and writing, be able to consult professional literature, and read the professional books and periodicals proficiently.

要求 11：了解专业相关领域先进的理论与技术，时刻关注理论与技术的发展进程，具有一生求学不止的能力。

Requirement 11: Understand advanced theories and technologies of related fields, pay close attention to the developmental process of theories and technologies, and have the ability of studying for a lifetime.

要求 12：在实习与实训过程中，学会与他人合作完成相关课程内容，具备与他人团结协作的能力和精神。

Requirement 12: During the internship and training, learn to cooperate with others to complete relevant course tasks, and have the ability and spirit of teamwork.

三、毕业学分要求

3. Credit requirements for graduation

本专业毕业总学分要求为 122 学分。学分与学时分配比例见下表：

The total credits required for graduation of this major are 122 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	理论教学 Theory teaching	基础课程 Basic courses	47	760	38.5	49.2
		专业基础课程 Professional foundation course	31	496	25.4	32.1
		专业课程 Professional courses	18	288	14.8	18.7
		小计 Subtotal	96	1544	78.7	100.0
	实践环节小计 Practice subtotal		26		21.3	
	合计 Total		122	1544		100.0

毕业要求 Graduation requirements	1、 本专业学生需要修满教学计划要求的 122 学分方可毕业； 2、 符合条件授予工学学士学位； 3、 本专业学生使用英文撰写毕业论文。 1、Students of this major need to complete 122 credits required by the program to graduate. 2、Qualified students will be awarded bachelor of engineering degree. 3、Students of this major write their graduation thesis in English.

四、课程设置、教学环节及进程

4. Curriculum, teaching links and progress

（一）基础课程

(1) 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							
					一 One	二 Two	三 Three	四 Four	五 Five	六 Six	七 Seven	八 Eight
90611-2#	综合汉语 Comprehensive Chinese	256		16	8/128 8.0	8/128 8.0						
90710081	汉语听说 Chinese Listening and Speaking	64		4	4/64 4.0							
90640041	中国概况 Overview of China	32		2	2							
90680041	汉字基础 Chinese Character Foundation	32		2	2							
90820081	汉语阅读 Chinese Reading	64		4		4/64 4.0						
	高等数学 Advanced Mathematics	112		7		4/64 4.0	3/48 3.0					
50030041	线性代数 Linear Algebra	32		2				4				
	大学物理 Physics	80		5		4/40 2.5	4/40 2.5					
	大学物理实验 Physics Experiments	40		2		2/20 1.0	2/20 1.0					

40170063	计算机基础与程序设计语言 Computer Foundation and Programming Language	48	12	3			4					
A	**应修小计 Subtotal**	760	12	47								

（二）专业基础课

(2) Professional 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							
					一 One	二 Two	三 Three	四 Four	五 Five	六 Six	七 Seven	八 Eight
20030041	工程制图与 CAD Engineering Drawing & CAD	32		2			4					
20310063	工程力学 Engineering mechanics	48	6	3			4					
2n150043	General Chemistry	32	8	2			4					
2Y010031	Intro to Petroleum Engineering	24		1.5				4				
2Y020031	Oil field Chemistry	24		1.5				4				
45150043	电工与电子技术 Electrical and Electronic Technology	32	6	2				4				
2Y030051	Engineering Fluid Mechanics	40		2.5				4				

2Y040031	Geology Basis	24		1.5				4				
2n020041	Mechanics of Oil And Gas Flow In Porous Media	32		2					4			
2n010053	Reservoir Physics	40	6	2.5					4			
2Y050051	Thermal Engineering	40		2.5				4				
2n100041	Oilfield Development Geology	32		2						4		
2n160041	Logging methods and integrated interpretation	32		2					4			
2n890031	Environmental Protection of Oil & Gas Field	24		1.5							4	
2n590031	EOR Principle	24		1.5						4		
2n650021	Literature Retrieval	16		1						4		
B	**应修小计 Subtotal**	496	26	31								

（三）专业课

(3) Specialized 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							
					一 One	二 Two	三 Three	四 Four	五 Five	六 Six	七 Seven	八 Eight
2n030063	Drilling Engineering and Completion Engineering	48	4	3						4		
2n040063	Oil Production Engineering	48	6	3						4		
2n380061	Reservoir	48		3						4		

	Engineering											
2n450021	Gas Production Engineering	16		1							4	
2n580021	Reservoir Protection Technology	16		1					4			
2n070031	Foundation of Reservoir Numerical Simulation	24		1.5							4	
2n670031	Petroleum Technology Economics and Project Management	24		1.5					4			
2n050041	Drilling Fluid & Completion Fluid	32		2							4	
2n780041	Oilfield Sewage Treatment	32		2							4	
C	**应修小计** Subtotal	288	10	18								

（四）实践环节（S 类课程）

(4) Practical links (S-type courses)

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**
金工实习 Metalworking practice	1	1.0	3	18-18
地质实习 Geological practice	2	2.0	5	1-2
Production practice	3	3.0	6	1-3
Course Design of Petroleum Engineering	4	4.0	7	1-4
Graduation Link of Petroleum Engineering	16	16.0	8	1-16
总计 Total		26		