

**Undergraduate Program of Petroleum Engineering (in English) – 2017 Version**  
**(Enrolled in Fall semester)**  
**(Specialty Code: 081502)**

## **I. Educational Objectives**

The educational aim of Petroleum Engineering specialty is to cultivate qualified personnel with advanced technology and engineering knowledge. To develop all-round morality, intellectuality and physical fitness, they can adapt to the needs of modern petroleum industrial development. They don't gain just the basic training on petroleum engineering, but also can be engaged in petroleum engineering design, operation and construction, production and management, scientific development and applied research etc. when they graduate from the university.

## **II . Requirements**

Graduates should acquire the following knowledge and capabilities.

1. Graduates will have solid foundation on math, physics, chemistry, mechanics and geology etc. They are able to use the basic Chinese to read Chinese books and magazines of their own specialty and have some skills such as listening, speaking, reading, writing and translation etc.
2. Graduates will grasp the basic theory and professional knowledge of engineering science required in their own specialty. They will possess preliminary capability to use basic applied theory and knowledge to go on oil and gas well drilling and recovering engineering design and oil and gas well development project design, to analyze and solve practical problems on petroleum engineering, and to make technological improvement, scientific development and applied research.
3. Graduates will have fairly strong experiment test, calculation and expression abilities and master document retrieval and other method to acquire scientific and technological information.
4. Graduates will have a better self-study and work adaptation capability, computer operation and application ability and innovative consciousness.
5. Graduates will have insight and ability to use systematic engineering ideas and modern operational knowledge to go on production and organizational management.

### III . Graduate Requirements and Distribution of Course Credits and Credit Hours

Category		Course Credits	Credit Hours	Remarks
Compulsory modules	Theory studies	111	1844	Including 74 CHs of experiment and 8 (56) CHs of Computer lab
	Experiment	4.0	96	
	Practice	28.0		
Selective modules		37.0		
Graduation requirements	<ol style="list-style-type: none"> <li>1. Students shall obtain the above required 180 credits together with 10 credits (2 credits must from social practice and innovation and entrepreneurship, respectively) required in the self-development plan.</li> <li>2. Those who meet the graduation requirements will be awarded a Bachelor of Engineering.</li> </ol>			



09101	Advanced mathematics (2-2)	5.0	80	80				80	5.0									
04341	Engineering Drawing	3.0	48	44		4		48	3.0									
09601	General Chemistry	2.5	40	36	4			40	2.5									
09301	College Physics (2-1)	4.0	64	64				64	4.0									
02991	Cognition Practice	2.0	2.0Week				2.0Week			2.0								
09401	Physics Experiments (2-1)	1.0	24		24						1.0							
09103	Linear Algebra	2.0	32	32				32			2.0							
06401	Engineering Mechanics	4.0	64	60	4			64			4.0							
09612	Organic Chemistry	2.0	32	28	4			32			2.0							
09301	College Physics (2-2)	3.0	48	48				48			3.0							
09401	Physics Experiments (2-2)	1.0	24		24							1.0						
02314	Applied physical chemistry	2.5	40	40				40				2.5						
01106	Fundamentals of Geology	2.0	32	28	4			32				2.0						
02220	Fluid Mechanics	3.0	48	40	8			48				3.0						First half semester
06311	Heat transfer	2.0	32	28	4			32				2.0						Second half semester
01912	Geology Practice	2.0	2.0Week				2.0Week						2.0					
01114	Geology of Oilfield Exploitation	2.5	40	32	8			40						2.5				
02108	Fluid Flow in Porous Medium	3.0	48	48				48						3.0				
02109	Petrophysics	2.5	40	40				40						2.5				First half semester
02148	Experiments of filtration mechanics and petrophysics	1.0	24		24									1.0				
02112	Rock Mechanics	2.0	32	28	4			32						2.0				
05402	Electric Electronics I	3.0	48	38	10			48						3.0				
01229	Well Logging and Comprehensive Interpretation	2.0	32	32				32							2.0			
02301	Oilfield Chemistry	2.0	32	32				32						2.0				Second half semester



Major Courses	A: Oilfield Chemistry	02217	Fluid Mechanics Numerical Simulations and Experiments	2.0	32	10	4	18							2.0				●		
		05941	Electrical and electronic engineering internship	2.0	2.0W week					2.0W week						2.0					
		08105	Technical economics	2.0	32	32										2.0				△	
		04353	Machine Design Basics	3.0	48	46	2									3.0					
		04170	Oil drilling & Production machinery	2.0	32	30	2									2.0					
		05403	Electric Electronics II	2.0	32	32										2.0					
		20304	Petroleum instrument technology	2.0	32	32													2.0		
		20305	Oil drilling & Production equipment industry training	3.0	3.0W week					3.0W week										3.0	
		02149	Scientific and Technical Paper Searching and Writing	1.0	16	12			4											1.0	▲
		02001	Subject frontier knowledge lectures	1.0	16	16														1.0	●
	B: Drilling Engineering	02303	Principles of Enhanced Oil Recovery	2.0	32	32										2.0				●	
		02304	Oil-gas Reservoir Protection Technology	2.0	32	32													2.0	△	
		02305	Principles of Drilling Fluid Techniques	2.0	32	28	4												2.0		
		02311	Oilfield Wastewater Treatment	2.0	32	32														2.0	
		02003	Environment Protection in Oil & Gas Fields	2.0	32	32														2.0	△
		02315	Oilfield Chemicals	2.0	32	32														2.0	
		02127	Drilling Geology Environment Description	2.0	32	32										2.0					
		02116	Modern Drilling Technology	2.0	32	32														2.0	△
		02137	Well completion engineering	2.0	32	32														2.0	●
		02143	Theory and technology of well cementing	2.0	32	32														2.0	△
C: Production Engineering	02113	Fluid Jet Technology-Fundamentals and Applications	2.0	32	32														2.0		
	02123	Theory and Technology of Directional Drilling	2.0	32	32														2.0		
	02111	Multiphase Flow Theory and Calculation	2.0	32	32										2.0					●	
	02167	Oilfield informatization and big data application	2.0	32	32										2.0					△	

		02144	Foam Theory and Oil Production Technology	2.0	32	32												2.0		
		02120	The Sucker Rod Pumping System	2.0	32	32												2.0		▲
		02134	Theory and Technology of Sand Control of Oil/gas well	2.0	32	28	4											2.0		△
		02126	Well Stimulation Technology	2.0	32	32													2.0	●
		02125	Displacement Mechanism in Petroleum Reservoir	2.0	32	32							2.0							●
		02105	Gas reservoir engineering	2.0	32	32												2.0		●
		02124	Steam assisted thermal production	2.0	32	26		6										2.0		
		02115	Principles of Modern Well Testing Interpretation	2.0	32	28		4										2.0		▲
		02155	Reservoir numerical simulation methods and applications	2.0	32	28		4										2.0		
		02139	Development theories and methods of typical oil and gas fields	2.0	32	32													2.0	△
		02138	Reservoir Management	2.0	32	32													2.0	△
		02208	Oceanography	2.0	32	32							2.0							
		08106	Project management	2.0	32	32							2.0							△
		10002	Technological innovation and management	2.0	32	32									2.0					
		02203	Offshore Platform Engineering	2.0	32	32									2.0					
		02205	Marine law and marine environmental protection	2.0	32	32									2.0					
		01210	Introduction to Geophysical Exploration	2.0	32	32												2.0		
		02210	Offshore Petroleum Engineering	2.0	32	32												2.0		
		02168	Unconventional Oil and Gas Exploitation	2.0	32	32													2.0	▲
		01128	Reservoir description	2.0	32	32													2.0	
		01227	Production logging	2.0	32	32													2.0	
		02006	Petroleum Engineering HSE	2.0	32	32													2.0	△
Recommended credits				Compulsory				23.5	19.5	2.0	19.0	21.5	2.0	17.0	12.5	4.0	9.0	13.0	143	
				Selective							2.0	2.0		6.0	8.0		11.0	8.0	37	

				0	0		0	0		.0	0		
	Total	23	19	2.	21	23	2.	23	20	4.	20	21	180
		.5	.5	0	.0	.5	0	.0	.5	0	.0	.0	

Elective instructions:

1. Elective credit requirements:

(1) The elective course requires 37 credits.

(2) Require at least 27 credits from the elective course of the petroleum engineering major, including at least 16 elective credits from the subject-based course, including at least 8 credits for the mathematics foundation class and at least 8 credits for the major foundation class; At least 11 elective credits are earned in Groups A, B, C, and D. It is recommended to take a bilingual course and two research courses. Students are required to select a group from the four groups A, B, C, and D as the main training group, and obtain at least 6 credits from the group.

(3) Require at least 10 general education elective credits, of which at least 6 credits are obtained from the core courses of humanities and arts literacy, management wisdom and international vision, physical and mental health and career development, and 6 credits cannot all belong to the same module.

2. Elective guidance:

(1) The course with the ● number in the remarks is a professional core elective course, which is recommended for electives; the employment students are recommended to take the course with △ in the remarks, and the potential postgraduate students are recommended to take the course with ▲.

(2) It is recommended that students who intend to study in oilfield chemistry and enhanced oil recovery mainly take the elective course of “Group A”; students who intend to study in oil and gas drilling engineering mainly take elective courses in the direction of “Group B”; The students who intend to study in production projects mainly take elective courses in the direction of “C group”; the students who intend to study in the reservoir engineering mainly take elective courses in the direction of “D group”.