

# **Oil and Gas Engineering**

**Program Code: 0820**

## **1. Program Objectives**

To grasp solid foundation knowledge and systematic professional knowledge in Oil and Natural Gas Engineering;

To develop scientific research capabilities or the technical expertise in practical work;

To show an international perspective and potentials of collaboration and innovativeness;

To become high-level talents of professional technologies and managerial skills in the petroleum industry worldwide.

## **2. Program Directions**

### **(1) Oil-Gas Well Engineering**

- a. Mechanics, information and control of oil and gas wells
- b. Rock mechanics and engineering
- c. Fluid dynamics and engineering
- d. Chemistry and engineering of drilling and completion fluid

### **(2) Oil-Gas Field Development Engineering**

- a. Theory and application of oil and gas flow in porous medium
- b. Theory and systematic engineering of oil and gas field development
- c. Theory and technology of oil production
- d. Enhanced oil recovery and oilfield chemistry
- e. Information technology and its application in oil and gas field development

## **3. Program Duration**

3-5 years

## **4. Credit Requirements**

Minimum 28 credits in total, minimum 13 credits for compulsory courses.

## 5. Course Schedule

Course Type	Course Code	Course Name	Teaching hours	Credits	Semester
Compulsory courses	L600002	Survey of China	36	2	1
	L600012	Primary Chinese Language	48	3	1
	L600025	Numerical Analysis	48	3	1
	L7020101	Advanced Colloid Chemistry of Oil and Gas Engineering	48	3	1or2
	L6020101	Physics of Fluid Flow in Porous Media	48	3	1or2
	L6020102	Advanced Rock Mechanics	48	3	1or2
Compulsory sections	L7020103	Attend 10+ Seminars, Make 1 Academic Presentation		1	1-3
	L7020104	Literature Review and Research Proposal		1	3
Elective courses	L6020103	Modern Drilling and Completion Engineering	32	2	1or2
	L6020104	Advanced Oil & Gas Reservoir Engineering	32	2	1or2
	L6020105	Advanced Oil & Gas Production Engineering	32	2	1or2
	L7020102	Principles and Methods for Improved Oil Recovery (IOR)	32	2	1or2
	L6020106	Numerical Reservoir Simulation	48	3	1or2
	L6020107	Reservoir Stimulation Technology	32	2	1or2
	L6020108	Reservoir Description and Modeling	32	2	1or2
	L6020109	Environmental Pollution and Protection in Oil and Gas Exploitation	32	2	1or2
	L6020111	Deepwater Drilling and Production Engineering	32	2	1or2

	L6020110	Academic English Reading and Writing of Oil and Gas Engineering	16	1	1or2
UPCIC Course	L6000069	UPC Intensive Curricula		$\leq 3$	1-4
Supplementary courses	L5021001	Reservoir Engineering	56	3.5	2
	L5021002	Production Engineering	56	3.5	2
	L5021003	Petrophysics	48	3	1
	L5021004	Rock Mechanics	32	2	1
	L5023001	Oilfield Chemistry	48	3	2
	L5021005	Fluid Mechanics	48	3	2
	L5021006	Fluid Flow in Porous Media	48	3	1
	L5021007	Drilling Engineering	56	3.5	1
	L5024001	Offshore Petroleum Engineering	32	2	1

Notes: 1) The students must pass HSK level 3.

2) The trans-disciplinary students choose 2 supplementary courses under the advice of the supervisor. The supplementary courses are compulsory, but will not be counted in the total required credits.