资源勘查工程专业（英文授课）
留学生本科培养方案

(专业代码：081403　学制：4 年　学位：工学学士)

一、培养目标

本专业培养适应现代油气地质与勘探工程发展需要，德智体全面发展，获得石油地质工程师基本训练，知华、友华、具备全球视野、能够参与国际交流与合作，毕业后能从事油气成藏、综合勘探与开发地质及相关领域的科学研究、工程设计、科技开发和管理等方面工作的高素质专门技术人才。

二、毕业要求及实现矩阵

毕业生应获得以下几方面的知识和能力：

1. 汉语毕业要求：学生毕业前须通过汉语水平考试（HSK）4 级，具备基本的汉语听、说、读、写能力，能够适应在中国学习、生活及未来职业发展的语言需求。学生须完成以下指定课程并取得合格成绩：《中国概况（2–1）》《中国概况（2–2）》《初级汉语》《中级汉语》《高级汉语》。

2．掌握本专业所必需的地质基础理论和石油天然气地质的基本理论，具有应用基础理论和基础知识进行油气地质研究及综合勘探、油藏开发地质工程设计的基本技能；掌握地球物理勘探的基本知识、具有地震及测井资料解释和综合应用的能力；

3．具有较强的专业实践能力、能够综合运用所学知识解决油气地质研究及综合勘探、油藏开发地质工程设计方面的实际问题；

4．掌握油气地质等专业文献检索和其它获取科技信息的方法；

5．具有较强的自学能力、油气地质研究与勘探设计方面的工作能力、较熟练的计算机操作应用能力和创新意识。

毕业要求指标点分解与实现矩阵

毕业要求	指标点		课程
1．工程知识：具备数学、物理、化学、地质学、地球物理学等基础知识以及资源勘查工程专业知识并能用于分析和解决油气资源勘探开发过程中的复杂工程问题	1.1 能够运用数学、化学等自然科学知识用于分析和解决油气勘查工程建模、预测等专业工程问题		高等数学(2-1)/ 高等数学(2-2)/大学物理(2-1)/大学物理(2-2)/线性代数/大学化学/有机化学
	1.2 掌握本专业所需的岩石学知识，能够表述岩石学现象及特征，分析和解决油气勘查工程相关问题		地球科学概论/矿物岩石学(含晶体光学)/ 地质认识实习/古生物学/岩浆岩与变质岩/沉积学/岩心观察与描述/石油地质

毕业要求	指标点		课程
			学/油气田地下地质学/海底矿产资源（选修）
	1.3 掌握本专业所需的构造及地层学知识，能够表述相关地质现象及特征		地球科学概论/地质认识实习/沉积学/构造地质学/地史学/大地构造（选修）/岩心观察与描述/石油地质学/层序地层学（选修）/油气田地下地质学/非常规油气地质学/
	1.4 掌握本专业所需的地球物理、资源勘查工程专业知识，能够用于资源勘查复杂工程问题的表述、分析、设计及研究		地球科学概论/沉积学/地球物理测井/地球物理勘探
2．职业规范：基本掌握汉语，能够借助工具阅读和理解本专业的中文技术资料；具备在跨文化环境下的基础沟通与协作能力；具备较强的社会责任感以及良好的职业道德，遵守学术道德规范	2.1 具备基础汉语能力，能够借助工具阅读和理解中文专业资料；能够在跨文化环境中进行基础沟通与协作		初级汉语口语(2-1)/ 初级汉语口语(2-2)/ 初级汉语精读(2-1)/初级汉语精读(2-2)/ 中级汉语（2-1）/中级汉语（2-2 高级汉语(2-1) /高级汉语(2-2)
	2.2 具备较强的社会责任感以及良好的职业道德，遵守学术道德规范		道德与法律/中国概况（2-1）/中国概况（2-2）
3.问题分析：了解油气勘探开发及工程地质等领域的发展现状及前沿动态，能够应用自然科学与专业知识，并结合文献研究，分析资源勘查中的复杂工程问题，并获得有效结论	3.1 能够应用数学、自然科学及专业基础知识识别和判断复杂工程问题的关键环节和参数		高等数学(2-1)/ 高等数学(2-2)/大学物理(2-1)/大学物理(2-2)/线性代数/大学化学/有机化学/大学物理实验(2-1)/大学物理实验(2-2)
	3.2 能够利用文献检索及专业知识寻求问题的解决方案		毕业设计/油气地质与勘探综合研究
	3.3 能够分析复杂的油气地质问题，并获得有效结论		油气地质与勘探综合研究/综合地质实习/油气田地下地质学
4.设计开发解决方案：能够针对复杂资源勘查工程问题设计满足需求的方案、研究流程，并能够实施油气勘探开发和工程地质方案设计和分析	4.1 能够根据油气地质工程问题确定设计方案并优选		油气地质与勘探综合研究/综合地质实习/油气田地下地质学/油气田开发工程
	4.2 具备实施油气勘探目标评价、方案设计和工程分析的能力，并能够用图纸和设计报告等形式呈现设计成果		油气地质与勘探综合研究/综合地质实习/毕业设计/地质认识实习
5.实验探究：具有创新意识和科学精神，能够基于科学原理并采用科学方法研究资源勘查工程中的复杂问题，通过实验分析、数据解释及综合研究得到合理有效的结论	5.1 能够了解研究动态，提出研究目标，体现创新意识		学科前沿讲座（听 16 次学术报告）/毕业设计
	5.2 能够进行岩石学、构造、地层及油气地质等实验测试；		地质认识实习/综合地质实习/宝玉石鉴赏 （选修）/油气田地下地质学
	5.3 能够采集、整理实验数据，对实验结果进行分析和解释		大学物理实验(2-1)/大学物理实验(2-2)/ 大学化学
6.使用现代工具：掌握现代实验设备、计算机软件、互联网及大数据等技术，理解各种方法的局限性并利用这些技术解决复杂的资源	6.1 掌握人工智能、计算机科学如数据结构、程序设计的核心概念和基本方法		程序设计/大学计算机/地学大数据
	6.2 掌握岩石及构造方面的专业现代实验设备和专业软件的使用方法		地学大数据/综合地质实习/油气地质与勘探综合研究/油气田地下地质学

毕业要求	指标点		课程
勘查工程问题	6.3 掌握地球物理及化学方面的专业现代实验设备的使用方法		大学物理实验(2-1)/大学物理实验(2-2)/ 油气地球化学/大学化学/有机化学
7.工程与可持续发展：能够基于资源勘查工程相关背景知识进行合理分析，能够理解和评价油气勘探与工程地质对环境、经济和社会可持续发展的影响	7.1 熟悉资源勘查工程相关的行业标准、知识产权、产业政策和法律法规，了解企业管理体系		地球科学概论/地质认识实习/综合地质实习
	7.2 能分析、评价专业工程实践和复杂资源勘查工程问题解决方案对社会、安全、法律及文化的可持续影响		油气田开发工程/油气田地下地质学/综合地质实习/油气地质与勘探综合研究
8. 专业技能：具有编制专业相关图表、撰写专业研究报告并进行熟练交流的能力	8.1 能够熟练编绘专业有关复杂工程问题的图件、撰写专业报告并独立进行交流汇报		油气田地下地质学/毕业设计/综合地质实习/油气地质与勘探综合研究
9.项目管理：具有一定的组织管理知识和能力，具有较强的团队意识和协作精神，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	9.1 具有较强的团队意识和协作精神；具有一定的组织能力和管理知识		地质认识实习/综合地质实习
10.终身学习：具备终身获取和追踪新知识的意识，关注资源勘查工程学科的前沿发展现状和趋势具有自主学习和适应发展的能力	10.1 具有知识更新意识，把握学科发展动态		学科前沿讲座（听 16 次学术报告）
	10.2 具备自主学习的能力，坚持与时俱进		毕业设计
	10.3 具备项目管理、团队协作、终身学习能力和创新意识		毕业设计

三、主干学科、专业核心课程

主干学科：地质资源与地质工程

专业核心课程： 构造地质学、矿物岩石学、沉积学、石油地质学、油气田地下地质学、地球物理测井、地球物理勘探

四、特色课程

（一）专业特色课程

专创融合课：油气田地下地质学

项目式课程：地震资料地质综合解释、油气地质课程设计、油气田地下地质学课程设计

“人工智能+”课程：地学大数据

产教融合课：油气田地下地质学

校企共建课程：综合地质实习

（二）在地国际化课程

国际周课程

双语课程： 初级汉语口语(2-1)/ 初级汉语口语(2-2)/ 初级汉语精读(2-1)/初级汉语精读(2-2)/ 中级汉语（2-1）/中级汉语（2-2 高级汉语(2-1) /高级汉语(2-2)

（三）其他课程

劳动教育实践课程：地质认识实习、综合地质实习

课程思政示范课程：油气田地下地质学

五、学分修读要求

本专业学生在学校规定的修业年限内需修满专业培养方案要求的 155 学分，并取得辅助培养计划要求的 10 学分，通过 HSK4 级，方可毕业；符合学士学位授予条件的，授予工学学士学位。

授予学位类型：工学学士学位

课 程 类 别		学分	所占比例	理论学时	实践学时	学时合计
通识教育课	通识必修课程	43.0	28.2%	696	0	696
	通识选修课程	0.0	0.0%			
专业基础课	大类基础课程	52.5	34.4%	636	160+2 周	796+5 周
	专业必修课程	49	32.2%	458	30+1 周	488+18 周
	专业选修课程	8	5.2%	128	0	128
自主发展	跨学科课程	0.0	0.0%	0	0	0
	辅助学分	10(不计入毕业总学分)				
毕业总学分（总学时）		152.5	100%			
实践教学（含课内实验）			0%			
集中性实践教学环节		6	3.9%			

学期修读学分建议	学期	1	2	S1	3	4	S2	5	6	S3	7	8
	必修	21.5	27	2	16	18	2	16	12	3	9	18
	专业选修	0	0	0	0	0	0	2	4	0	2	0
	通识选修	0	0	0	0	0	0	0	0	0	0	0
	跨学科选修	0	0	0	0	0	0	0	0	0	0	0

	小计	21.5	27	2	16	18	2	18	16	3	11	18

六、课程设置、教学环节及进程

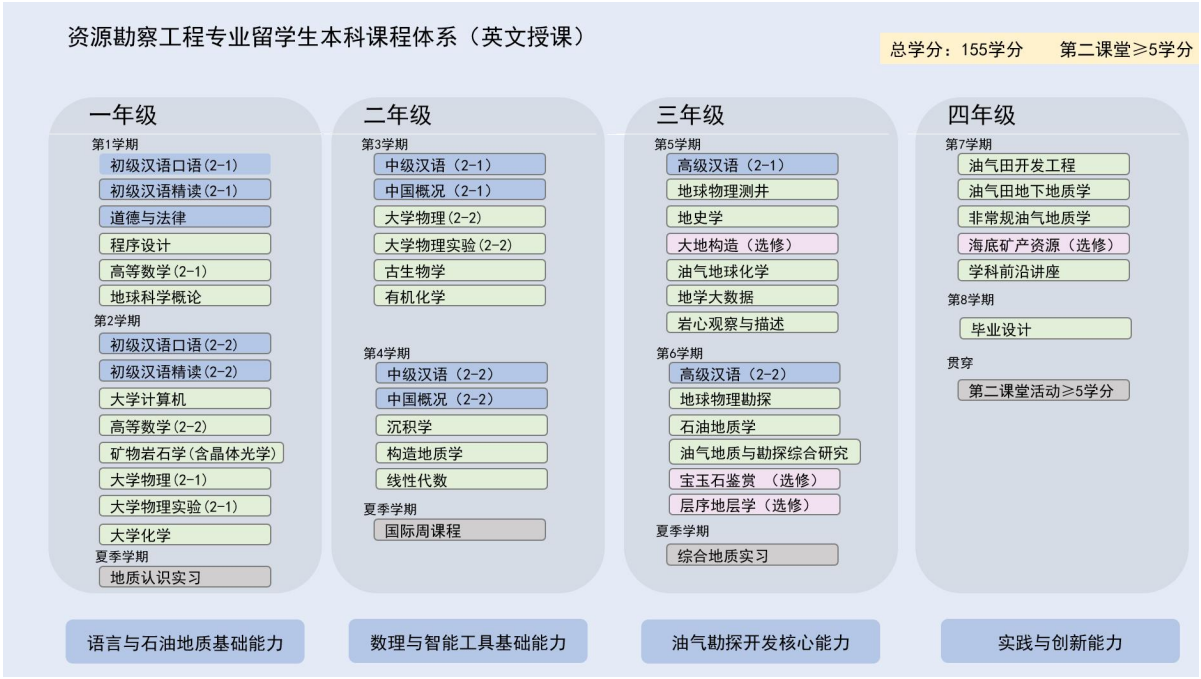
（说明：基础课程按照课程设置方案确定课程名称、学分、开课学期）

课程类别	课程模块	课程编码	课程名称	学分	课内学时					课外学时	学期	备注
					合计	讲授	实验	上机	实践			
通识教育课程	思政类课程	2092099	道德与法律 Ideological Morality and Rule of Law	1	16	16					1	
		2094199	中国概况(2-1) Survey of China (2-1)	3	48	48					3	
		2094299	中国概况(2-2) Survey of China (2-2)	3	48	48					4	
	基础素养课程	2091199	初级汉语口语(2-1) Primary Oral Chinese (2-1)	4	64	64					1	
		2092199	初级汉语精读(2-1) Primary Chinese reading (2-1)	4	64	64					1	
		0711299	程序设计（Python） Programming (Python)	3	48	48					1	
		2091299	初级汉语口语(2-2) Primary Oral Chinese (2-2)	4	64	64					2	
		2092299	初级汉语精读(2-2) Primary Chinese reading (2-2)	4	64	64					2	
		2095199	中级汉语(2-1) Intermediate Chinese (2-1)	4	64	64					3	
		0711399	大学计算机 College Computer Science	1	24	24					2	
		2095299	中级汉语(2-2) Intermediate Chinese (2-2)	4	64	64					4	
		2096199	高级汉语(2-1) Advanced Chinese(2-1)	4	64	64					5	
		2096299	高级汉语(2-2) Advanced Chinese(2-2)	4	64	64					6	
专业教育	大类基础课程	0110199	地球科学概论 Introduction to Earth Science	3.5	56	40	16				1	
		0911199	高等数学(2-1) Advanced Mathematics (2-1)	6	96	96					1	
		0960199	大学化学 College Chemistry	4	64	54	10				1	
		0911299	高等数学(2-2) Advanced Mathematics (2-2)	5	80	80					2	
		0931199	大学物理(2-1) University Physics (2-1)	4	64	64					2	
		0941199	大学物理实验(2-1) College Physics Experiment (2-1)	1	24		24				2	
		0110299	矿物岩石学(含晶体光学) Mineral Petrology	4	76	40	36				2	
		0191199	地质认识实习 Geological Cognition Practice	2	2 周				2 周		S1	
		0931299	大学物理(2-2) University Physics (2-2)	3.5	56	56					3	

课程类别	课程模块	课程编码	课程名称	学分	课内学时					课外学时	学期	备注
					合计	讲授	实验	上机	实践			
		0941299	大学物理实验(2-2) College Physics Experiment (2-2)	1	24		24				3	
专业教育		0113399	古生物学 Paleontology	2	32	22	10				3	
		0961299	有机化学 Organic Chemistry	2.5	40	40					3	
		0113499	沉积学 Sedimentology	4	64	48	16				4	
		0110399	构造地质学 Structural Geology	4	72	48	24				4	
		0910399	线性代数 Linear Algebra	3	48	48					4	
		0195199	综合地质实习 Comprehensive Geological Practice	3	3 周						S3	
	专业必修课程	0117899	国际周课程 International Week	2	32	32					S2	
		0117999	地球物理测井 Geophysical Well Logging	4	64	64					5	
		0113699	地史学 Geohistory	2	34	28	6				5	
		0114599	油气地球化学 Petroleum Geochemistry	2.0	32	32					5	
		0118099	地学大数据 Big Data of Geoscience	2.0	32	32					5	
		0118199	岩心观察与描述 Core Observation and Descriptio	2.0	32	32					5	
		0118299	地球物理勘探 Geophysical Exploration	4	64	64					6	
		0115499	石油地质学 Petroleum Geology	3.0	50	44	6				6	
		0190599	油气地质与勘探综合研究 Comprehensive Research on Petroleum Geology and Exploration	1.0	1 周		1 周				6	
		0111399	油气田地下地质学 Subsurface Geology of Oil & Gas Fields	3.0	52	40	12				7	
		0211499	油气田开发工程 Oil & Gas Field Development Engineering	3.0	48	42	6				7	
		0118499	非常规油气地质学 Unconventional Petroleum Geology	2.0	32	32					7	
		0118699	学科前沿讲座（听 16 次学术报告） Frontiers in Research Lecture Series	1.0	16	16					7	
		0199999	毕业设计 Graduation Project	18	18 周						8	
		0113599	大地构造 Geotectonics	2	32	32					5	
		0118399	宝玉石鉴赏 Appreciation of Precious Stones	2	32	32					6	

课程类别	课程模块	课程编码	课程名称	学分	课内学时					课外学时	学期	备注
					合计	讲授	实验	上机	实践			
专业教育	专业选修课程	0111899	层序地层学 Sequence Stratigraphy	2	32	32					6	
		0118599	海底矿产资源 Seabed Mineral Resources	2	32	32					7	
		修读说明	专业选修课程要求修满 8 学分。									
自主发展	跨学科课程	选修本专业所属专业类以外的专业开设的专业教育课程，也可通过修读微专业、辅修等途径替代		≥4						3-8		
	辅助学分	辅助学分不少于 10 个学分，活动设置、学分要求及认定方式见《本科生“第二课堂成绩单”实施细则》		≥10						1-8		

七、课程体系拓扑图



Undergraduate Program of Petroleum Geology (in English)
(Enrolled in Fall semester)

(Specialty Code: 081403)

I. Educational Objectives

This program is designed to cultivate qualified talents with advanced oil & gas geology and exploration engineering knowledge. To develop all-round morality, intellectuality and physical fitness, students can adapt to the needs of modern oil & gas geology and exploration. Graduates should have an understanding of China and goodwill towards it, possess a global perspective, be able to participate in international exchange and cooperation. Not only the students should master the basic training on petroleum geology, but also can be engaged in petroleum exploration design, operation and construction, production and management, scientific development and applied research etc. after the graduation from the university.

II. Program Requirements

Upon successful completion of this program, students will be able to:

1. Language Requirements: Students must pass the HSK Level 4 prior to graduation and possess basic Chinese listening, speaking, reading and writing skills, so as to meet the language requirements for their study, daily life and future career development in China. Students are required to complete the designated courses listed below and obtain passing grades: Survey of China (2-1), Survey of China (2-2), Elementary Chinese, Intermediate Chinese, Advanced Chinese.

2. Have solid foundation on math, physics, chemistry, mechanics and geology etc. and be able to use the basic Chinese to read Chinese books and professional magazines of their own specialty and have some skills such as listening, speaking, reading, writing and translation etc.

3. Grasp the basic theory and professional knowledge of physical geology and the petroleum geology. They will possess preliminary capability to use basic professional theory

and knowledge to work on oil & gas exploration, engineering design of reservoir geology, to understand basic knowledge of geophysics and gain the ability to interpret the geophysical data.

4.Have strong practical ability to handle the comprehensive problems in the oil and gas exploration and development.

5.Master the methods and IT technology to acquire and analysis scientific literature in the geology and related fields.

6. Have the strong ability of self-study, computer operation and innovative consciousness in petroleum geology.

Graduation Requirement Indicators and Achievement Matrix

Graduation Requirements	Performance Indicators	Courses
1.Engineering Knowledge: Possess a solid foundation in mathematics, physics, chemistry, geology, and geophysics, as well as specialized knowledge in resource exploration engineering, and be able to apply this knowledge to analyze and solve complex engineering problems encountered during the exploration and development of oil and gas resources.	1.1 Be able to apply knowledge of natural sciences, such as mathematics and chemistry, to analyze and solve specialized engineering problems in oil and gas exploration, including modeling and forecasting	Advanced Mathematics (2-1)/ Advanced Mathematics (2-2) /University Physics (2-1)/University Physics (2-2)/Linear Algebra/College Chemistry/Organic Chemistry
	1.2 Master the petrological knowledge required for this field, be able to describe petrological phenomena and characteristics, and analyze and solve problems related to oil and gas exploration engineering	Introduction to Earth Science/Mineral Petrology/Geological Cognition Practice/Paleontology/Igneous Rocks and Metamorphic Rocks/Sedimentology/Core Observation and Description/Petroleum Geology/Subsurface Geology of Oil & Gas Fields/Seabed Mineral Resources (Elective)
	1.3 Master the structural and stratigraphic knowledge required for this field and be able to describe relevant geological phenomena and characteristics	Introduction to Earth Science/Geological Cognition Practice/Sedimentology/Structural Geology/Geohistory/Geotectonics (Elective)/Core Observation and Description/Petroleum Geology/Sequence Stratigraphy (Elective)/Subsurface Geology of Oil & Gas Fields/Unconventional Petroleum Geology
	1.4 Master the specialized knowledge of geophysics and resource exploration engineering required for this field, and be able to apply it to the formulation, analysis, design, and research of complex engineering	Introduction to Earth Science/Sedimentology/Geophysical Well Logging/Geophysical Exploration

Graduation Requirements	Performance Indicators	Courses
	problems in resource exploration	
2. Professional Standards: Demonstrate a basic command of Chinese, with the ability to read and understand technical materials in Chinese related to one's field with the aid of reference tools; possess basic communication and collaboration skills in cross-cultural settings; demonstrate a strong sense of social responsibility and sound professional ethics, and adhere to academic integrity standards	2.1 Possess basic Chinese language proficiency, and be able to read and understand Chinese technical materials with the aid of tools; be able to engage in basic communication and collaboration in cross-cultural settings	Primary Oral Chinese (2-1)/ Primary Oral Chinese (2-2)/ Primary Chinese reading (2-1)/Primary Chinese reading (2-2)/ Intermediate Chinese (2-1)/Intermediate Chinese (2-2)/Advanced Chinese (2-1) /Advanced Chinese (2-2)
	2.2 Possess a strong sense of social responsibility and sound professional ethics, and adhere to academic integrity standards	Ideological Morality and Rule of Law/Survey of China (2-1)/Survey of China (2-2)
3. Problem Analysis: Understand the current state and cutting-edge developments in fields such as oil and gas exploration and development, as well as engineering geology; be able to apply knowledge of natural sciences and specialized expertise, in conjunction with literature reviews, to analyze complex engineering problems in resource exploration and draw valid conclusions	3.1 Be able to apply mathematics, natural sciences, and fundamental professional knowledge to identify and assess the critical aspects and parameters of complex engineering problems	Advanced Mathematics (2-1)/ Advanced Mathematics (2-2) /University Physics (2-1)/University Physics (2-2)/Linear Algebra/College Chemistry/Organic Chemistry/College Physics Experiment (2-1)/College Physics Experiment (2-2)
	3.2 Be able to utilize literature searches and professional knowledge to seek solutions to problems	Graduation Project/Comprehensive Research on Petroleum Geology and Exploration
	3.3 Able to analyze complex oil and gas geological problems and draw valid conclusions	Comprehensive Research on Petroleum Geology and Exploration/Comprehensive Geological Practice/Subsurface Geology of Oil & Gas Fields
4. Design and Development Solutions: Capable of designing solutions and research processes tailored to complex resource exploration engineering challenges, and capable of implementing oil and gas exploration and development projects as well as engineering geological design and analysis	4.1 Able to determine and optimize design solutions based on oil and gas geological engineering problems	Comprehensive Research on Petroleum Geology and Exploration/Comprehensive Geological Practice/Subsurface Geology of Oil & Gas Fields/Oil & Gas Field Development Engineering
	4.2 Possess the ability to conduct evaluations of oil and gas exploration objectives, design plans, and engineering analyses, and present design outcomes through drawings and design reports	Comprehensive Research on Petroleum Geology and Exploration/Comprehensive Geological Practice/Graduation Project/Geological Cognition Practice
5. Experimental Inquiry: Possess an innovative mindset and scientific spirit; be able to investigate complex issues in	5.1 Able to stay informed about research trends, propose research objectives, and demonstrate an innovative mindset	Frontiers in Research Lecture Series/Graduation Project

Graduation Requirements	Performance Indicators	Courses
resource exploration engineering based on scientific principles and using scientific methods; and arrive at reasonable and effective conclusions through experimental analysis, data interpretation, and comprehensive research.	5.2 Able to conduct experimental testing in petrology, tectonics, stratigraphy, and hydrocarbon geology;	Geological Cognition Practice/Comprehensive Geological Practice/Appreciation of Precious Stones (Elective)/Subsurface Geology of Oil & Gas Fields
	5.3 Able to collect and organize experimental data, and analyze and interpret experimental results	College Physics Experiment (2-1)/College Physics Experiment (2-2)/ College Chemistry
6. Use modern tools: Master modern laboratory equipment, computer software, the Internet, big data, and other technologies; understand the limitations of various methods; and apply these technologies to solve complex problems in resource exploration engineering.	6.1 Master core concepts and fundamental methods in artificial intelligence and comput	Programming (Python)/College Computer Science/Big Data of Geoscience
	6.2 Master the use of modern specialized experimental equipment and professional software in petrology and tectonics	Big Data of Geoscience/Comprehensive Geological Practice/Comprehensive Research on Petroleum Geology and Exploration/Subsurface Geology of Oil & Gas Fields
	6.3 Master the use of modern specialized experimental equipment in geophysics and geochemistry	College Physics Experiment (2-1)/College Physics Experiment (2-2)/ Petroleum Geochemistry/College Chemistry/Organic Chemistry
7. Engineering and Sustainable Development: Ability to conduct sound analyses based on background knowledge of resource exploration engineering; ability to understand and evaluate the impacts of oil and gas exploration and engineering geology on environmental, economic, and social sustainability	7.1 Be familiar with industry standards, intellectual property, industrial policies, and laws and regulations related to resource exploration engineering, and understand corporate management systems	Introduction to Earth Science/Geological Cognition Practice/Comprehensive Geological Practice
	7.2 Be able to analyze and evaluate the sustainable social, safety, legal, and cultural impacts of professional engineering practices and solutions to complex resource exploration engineering problems	Oil & Gas Field Development Engineering/Subsurface Geology of Oil & Gas Fields/Comprehensive Geological Practice/Comprehensive Research on Petroleum Geology and Exploration
8. Professional Skills: Ability to create subject-specific charts and graphs, write professional research reports, and communicate effectively	8.1 Be able to proficiently prepare technical drawings related to complex engineering problems, write professional reports, and independently present and report findings	Subsurface Geology of Oil & Gas Fields/Graduation Project/Comprehensive Geological Practice/Comprehensive Research on Petroleum Geology and Exploration
9. Project Management: Possesses a solid foundation of organizational management knowledge and skills,	9.1 Possess a strong sense of teamwork and collaboration; demonstrate organizational skills and management knowledge	Geological Cognition Practice/Comprehensive Geological Practice

Graduation Requirements	Performance Indicators	Courses
demonstrates a strong sense of teamwork and collaboration, and is capable of assuming the roles of an individual contributor, team member, and team leader within multidisciplinary teams.		
10. Lifelong Learning: Possess the mindset to continuously acquire and keep abreast of new knowledge; stay informed about the current state and trends in the field of resource exploration engineering; and demonstrate the ability to engage in self-directed learning and adapt to evolving developments.	10.1 Maintain a commitment to updating knowledge and stay abreast of developments in the discipline	Frontiers in Research Lecture Series
	10.2 Possess the ability for self-directed learning and remain committed to keeping pace with the times	Graduation Project
	10.3 Possess project management, teamwork, lifelong learning, and innovative thinking skills	Graduation Project

III. Main Discipline and Core Courses

Core Disciplines: Geological Resources and Geological Engineering

Core Courses: Structural Geology, Mineral Petrology, Sedimentology, Petroleum Geology, Subsurface Geology of Oil & Gas Fields, Geophysical Well Logging, Geophysical Exploration

IV. Featured Courses

1. Specialized Featured Courses

Innovation and Entrepreneurship Integrated Course: Subsurface Geology of Oil & Gas Fields

Project-Based Courses: Comprehensive Geological Interpretation of Seismic Dat

"Artificial Intelligence +" Course: Big Data in Geoscience

Industry-Education Integrated Course: Subsurface Geology of Oil & Gas Fields

University-Enterprise Co-constructed Course: Comprehensive Geological Practice

2. Localized International Courses

International Week

Bilingual Courses: Primary Oral Chinese (2-1)/ Primary Oral Chinese (2-2)/ Primary

Chinese reading (2-1)/Primary Chinese reading (2-2)/ Intermediate Chinese (2-1)/Intermediate Chinese (2-2)/Advanced Chinese (2-1) /Advanced Chinese (2-2)

3. Other Courses

Labor Education Practice Course: Geological Cognition Practice, Comprehensive Geological Practice

Model Course for Curriculum-Based Ideological and Political Education: Subsurface Geology of Oil & Gas Fields

V. Credit Requirements

Students of this major are required to complete the 155 credits mandated by the professional training program within the prescribed schooling length, obtain the 10 credits required by the auxiliary training plan, and pass the HSK Level 4 before graduation. Those who satisfy the criteria for the conferral of a bachelor's degree will be awarded a Bachelor of Engineering.

Degree Conferred: Bachelor of Engineering

Course Category	Module	Credits	Percentage	Theoretical Hours	Practical Hours	Total Hours
General Education Courses	General Required Courses	43.0	28.2%	696	0	696
General Education Courses	General Elective Courses	0.0	0.0%			
Major Foundation Courses	Discipline Foundation Courses	52.5	34.4%	636	160+2weeks	796+5 weeks
Major Foundation Courses	Major Required Courses	49	32.2%	458	30+1 week	488+18 weeks
Major Foundation Courses	Major Elective Courses	8	5.2%	128	0	128
Independent Development	Interdisciplinary Courses	0.0	0.0%	0	0	0
Independent Development	Auxiliary training program	10（Not included in total graduation credits）				

Course Category	Module	Credits	Percentage	Theoretical Hours	Practical Hours	Total Hours
Total Graduation Credits (Total Hours)		152.5	100%			
Practical Teaching (including in-class experiments)			0%		0	0
Intensive Practical Teaching Components		6	38.7%			0

Recommended Credits by Semester

Category	1	2	S1	3	4	S2	5	6	S3	7	8
Required Courses	21.5	27	2	16	18	2	16	12	3	9	18
Major Electives	0	0	0	0	0	0	2	4	0	2	0
General Electives	0	0	0	0	0	0	0	0	0	0	0
Interdisciplinary Electives	0	0	0	0	0	0	0	0	0	0	0
Subtotal	21.5	27	2	16	18	2	18	16	3	11	18

VI. Curriculum Structure

Course Category	Course Module	Course Module	Course Module	Credits	In-Class Hours					Extracurricular Hours	Semester	Remarks
					Total Hours	Lecture	Experiment	Computer Lab	Practice			
General Education Courses	Ideological and Political Courses	2092099	道德与法律 Ideological Morality and Rule of Law	1	16	16					1	
		2094199	中国概况(2-1) Survey of China (2-1)	3	48	48					3	
		2094299	中国概况(2-2) Survey of China (2-2)	3	48	48					4	
	Basic	2091199	初级汉语口语(2-1) Primary Oral Chinese (2-1)	4	64	64					1	

Course Category	Course Module	Course Module	Course Module	Credits	In-Class Hours					Extracurricular Hours	Semester	Remarks
					Total Hours	Lecture	Experiment	Computer Lab	Practice			
	Literacy Course	2092199	初级汉语精读(2-1) Primary Chinese reading (2-1)	4	64	64					1	
		0711299	程序设计（Python） Programming (Python)	3	48	48					1	
		2091299	初级汉语口语(2-2) Primary Oral Chinese (2-2)	4	64	64					2	
		2092299	初级汉语精读(2-2) Primary Chinese reading (2-2)	4	64	64					2	
		2095199	中级汉语(2-1) Intermediate Chinese (2-1)	4	64	64					3	
		0711399	大学计算机 College Computer Science	1	24	24					2	
		2095299	中级汉语(2-2) Intermediate Chinese (2-2)	4	64	64					4	
		2096199	高级汉语(2-1) Advanced Chinese(2-1)	4	64	64					5	
		2096299	高级汉语(2-2) Advanced Chinese(2-2)	4	64	64					6	
Professional Education	Discipline Foundation Courses	0110199	地球科学概论 Introduction to Earth Science	3.5	56	40	16				1	
		0911199	高等数学(2-1) Advanced Mathematics (2-1)	6	96	96					1	
		0960199	大学化学 College Chemistry	4	64	54	10				1	
		0911299	高等数学(2-2) Advanced Mathematics (2-2)	5	80	80					2	
		0931199	大学物理(2-1) University Physics (2-1)	4	64	64					2	

Course Category	Course Module	Course Module	Course Module	Credits	In-Class Hours					Extracurricular Hours	Semester	Remarks
					Total Hours	Lecture	Experiment	Computer Lab	Practice			
		0941199	大学物理实验(2-1) College Physics Experiment (2-1)	1	24		24				2	
		0110299	矿物岩石学(含晶体光学) Mineral Petrology	4	76	40	36				2	
		0191199	地质认识实习 Geological Cognition Practice	2	2 weeks				2 weeks		S1	
		0931299	大学物理(2-2) University Physics (2-2)	3.5	56	56					3	
		0941299	大学物理实验(2-2) College Physics Experiment (2-2)	1	24		24				3	
		0113399	古生物学 Paleontology	2	32	22	10				3	
		0961299	有机化学 Organic Chemistry	2.5	40	40					3	
		0113499	沉积学 Sedimentology	4	64	48	16				4	
		0110399	构造地质学 Structural Geology	4	72	48	24				4	
		0910399	线性代数 Linear Algebra	3	48	48					4	
		0195199	综合地质实习 Comprehensive Geological Practice	3	3 weeks						S3	
	Major Required Courses	0117899	国际周课程 International Week	2	32	32					S2	
		0117999	地球物理测井 Geophysical Well Logging	4	64	64					5	
		0113699	地史学 Geohistory	2	34	28	6				5	
		0114599	油气地球化学 Petroleum Geochemistry	2.0	32	32					5	
		0118099	地学大数据 Big Data of Geoscience	2.0	32	32					5	

Course Category	Course Module	Course Module	Course Module	Credits	In-Class Hours					Extracurricular Hours	Semester	Remarks
					Total Hours	Lecture	Experiment	Computer Lab	Practice			
		0118199	岩心观察与描述 Core Observation and Description	2.0	32	32					5	
		0118299	地球物理勘探 Geophysical Exploration	4	64	64					6	
		0115499	石油地质学 Petroleum Geology	3.0	50	44	6				6	
		0190599	油气地质与勘探综合研究 Comprehensive Research on Petroleum Geology and Exploration	1.0	1 week		1 week				6	
		0111399	油气田地下地质学 Subsurface Geology of Oil & Gas Fields	3.0	52	40	12				7	
		0211499	油气田开发工程 Oil & Gas Field Development Engineering	3.0	48	42	6				7	
		0118499	非常规油气地质学 Unconventional Petroleum Geology	2.0	32	32					7	
		0118699	学科前沿讲座（听16次学术报告） Frontiers in Research Lecture Series	1.0	16	16					7	
		0199999	毕业设计 Graduation Project	18	18weeks						8	
		0113599	大地构造 Geotectonics	2	32	32					5	
		0118399	宝玉石鉴赏 Appreciation of Precious Stones	2	32	32					6	
Professional Education	Major Elective	0111899	层序地层学 Sequence Stratigraphy	2	32	32					6	
		0118599	海底矿产资源 Seabed Mineral Resources	2	32	32					7	

Course Category	Course Module	Course Module	Course Module	Credits	In-Class Hours					Extracurricular Hours	Semester	Remarks
					Total Hours	Lecture	Experiment	Computer Lab	Practice			
	Courses	Course Selection Note	Students must complete at least 8credits of major elective courses.									
Independent Development	Interdisciplinary Courses	Interdisciplinary Courses: Students may take professional education courses offered outside their own discipline, or substitute them through minors, micro-majors, or other approved pathways. (If applicable, recommended courses may be specified by the program.)		≥4						3-8		
	Auxiliary training program	Students are required to complete no fewer than 10 credits of auxiliary training program activities. The activity arrangements, credit requirements, and recognition methods shall follow the Implementation Rules for the Undergraduate 'Auxiliary training program/ Second Classroom Transcript'.		≥10						1-8		