地质资源与地质工程 (0818)
Geological Resource and Geological Engineering

学科门类：工学(08)　一级学科：地质资源与地质工程(0818)

Discipline Category: Engineering (08)

First-Class Discipline: Geological Resource and Geological Engineering (0818)

一、学科介绍

河海大学地质资源与地质工程学科办学历史悠久，是全国水利水电行业最早开设地质工程专业的高等学校，是国家“211 工程”、“985 优势学科创新平台”和“双一流”重点建设学科。地质资源与地质工程一级学科含地质工程、地球探测与信息技术、地下水科学与工程、地学信息工程四个二级学科。1986 年获水文地质与工程地质硕士学位授权点，2003 年获地质工程博士学位授权点，2005 年地质资源与地质工程获一级学科硕士学位授权点，2010 年获地质资源与地质工程一级学科博士学位授权点，2014 年获批一级学科博士后流动站，2016 年获批“十三五”江苏省重点学科，2021 年获批“十四五”江苏省重点学科；是国内培养地质资源与地质工程高级人才的重要基地，综合排名处于全国前列。

本学科现有教师 43 人，其中教授 21 名（其中博导 17 名），副教授 13 名，具有博士学位教师 39 名。学科拥有先进的野外测试、试验设备和室内实验平台。毕业研究生主要从事水利水电、土木、交通、国土资源等领域的科学研究与管理工作。

I. Discipline Overview

The discipline of Geological Resources and Geological Engineering of Hohai University has a long history. It is the first institution of higher learning to set up the discipline of geological engineering in the national water conservancy and hydropower industry. It is the key construction discipline of the national "211 Project", "985 Advantageous Discipline Innovation Platform" and "Double First-Class". The sub-discipline of Geological Resource and Engineering (GRE) in Hohai University includes five directions, Geological Engineering (GE),

Geophysical Prospecting (GP), Information Technology (IT), Groundwater Science and Engineering (GSE), and Geological Information Engineering (GIE). Under regulations of the Ministry of Education, P.R. China, the GE was was approved as a master's degree authorization point in hydrogeology and engineering geology in 1986, a doctor's degree authorization point in Geological Engineering in 2003. This direction has been designated as key discipline in Jiangsu Province during the 13th Five Year Plan period in 2016, and a key discipline in Jiangsu Province during the 14th Five Year Plan period in 2021. The entire sub-discipline of GRE can award Master's and Doctor's degrees since 2005 and 2010 respectively. From 2014, GRE can accept Post Doctor Fellows (PDF) to conduct research. It is an important base for training senior talents in geological resources and geological engineering in China, ranking in the forefront of the country.

The GRE has 43 teachers, including 21 professors (17 of them are doctoral tutors), 13 associate professors and 39 teachers with doctorates. The GRE is facilitated with safety monitoring systems, geologic and geophysical equipment and other state of the art amenities. The GRE graduates mainly engage in scientific research and management work in the fields of water conservancy, hydropower, civil engineering, transportation, and resources exploration, etc.

二、培养目标

1. 河海大学硕士层次外国留学生应当在地质资源与地质工程领域中具有较好的国际视野，能够在多个国家的实际环境中运用和发展地质资源与地质工程领域的知识、技能和方法，并具备参与国际事务和国际竞争的能力。

2. 以英语为专业教学语言的学科、专业中，外国留学生毕业时，硕士研究生的中文能力应当至少达到《国际汉语能力标准》三级水平。

3. 本学科旨在培养良好的职业道德和创业精神、科学严谨和求真务实的学习态度和工作作风，身心健康；具有实事求是的科学态度和端正严谨的诚信学风，具有坚实的基础理论和系统的专门知识，对学科的现状和发展趋势有较为全面的了解，具有较好的国际视野、能独立从事本学科科学研究和有效解决工程实际问题能力的高级专门人才。

II. Training Objectives

1. International master graduates of Hohai University are expected to have good international view, to apply and develop the theories, skills, and methodologies in the actual environment of several countries, and to participate in the international academic affairs.

2. International master graduates must meet the requirement of Level 3 in Chinese Language Proficiency Scales upon graduation if they conduct their coursework in English.

3. The graduates shall have professional ethics, rigorous analytic skills across disciplines and good health. They are able to tackle future technical challenges through understanding of the engineering science.

三、研究方向

1. 地质工程

2. 地下水科学与工程

3. 地球探测与信息技术

III. Research Directions

1. Geological Engineering

2. Ground water Science and Engineering

3. Geophysical Prospecting and Information Technology

四、学制和学习年限

学术学位全英文硕士留学研究生的标准学制为 3 年。实行弹性学制，学习年限最短不少于 2 年，最长不超过 5 年。

IV. Number of Years Requirement

The master program typically requires 3 years to complete. However, the completing time may vary to 2 years as the minimum and 5 years as the maximum.

五、学分要求和课程设置

1. 学术学位全英文硕士留学研究生课程总学分为 28 学分，其中学位课程为 20 学分，非学位课程为 8 学分。另设教学环节。所有课程学习一般应在入学后 1 年内完成。

2. 汉语课每学分为 24 学时，中国概况课每学分为 18 学时，其他课程每学分为 16 学时。

3. 中国国情教育（水韵课堂）为系列专题讲座，要求学生按照要求完成规定的学习任务。

4. 对于汉语水平已达到毕业要求的学生，可申请免修汉语，具体要求详见留学生课程免修有关规定。

具体课程设置如下：

V. Credit Requirements and Curriculum

1. International academic master students will complete 28 credits, 20 of which are from degree courses, and 8 of which are from non-degree courses. Students will also complete academic activities. Coursework will be completed in one year after registration.

2. Each credit of Chinese language course is 24 credit hours. Each credit of Introduction to China is 18 credit hours. For other courses, each credit is 16 credit hours.

3. “Water Harmony Lectures” is a series of seminars, which require students to complete the specified learning tasks.

4. For students who have met the Chinese language requirement for the master degree, Chinese language courses can be exempted, of which the details can be referred to in relevant regulations.

The specific curriculum is as follows:

地质资源与地质工程全英文学术型留学硕士研究生课程设置

Curriculum for English Taught International Academic Master Students in Geological Resource and Geological Engineering

课程类别 Category		课程代码 Course Code	课程名称 Course Name	学分 Credit	学时 Hours	开课学期 Term	备注 Remarks
学位课程 Degree Course 20 学分	公共课程 General course	2022LM000001	汉语 I Chinese Language I	48	2	秋 Autumn	必修 Compulsory
		2022LM000002	汉语 II Chinese Language II	48	2	春 Spring	
		2022LM000003	中国概况 Introduction to China	36	2	秋 Autumn	
		2022LM110001	论文写作指导 Guide of Thesis Writing	32	2	秋/春 Autumn/ Spring	
	基础课程 Basic courses	2022LM880003	数值分析 Numerical Analysis	48	3	秋 Autumn	选修 6 学分 Optional 6 credits at least
		2022LM880002	最优化方法 Optimization Methods	32	2	秋 Autumn	
		2022LM880004	数学物理方程 Partial Differential Equations	32	2	春 Spring	
		2022LM880001	矩阵论 Matrix Theory	32	2	春 Spring	
		2022LM990504	环境规划 Environmental Planning	32	2	秋 Autumn	选修 2 学分 Optional 2 credits at least
		2022LM990505	地下水污染防治 Groundwater Pollution Prevention and Remedation	32	2	春 Spring	
	专业课程 Advanced courses	2022LM100201	岩石高边坡工程地质分析理论与方法 Engineering Geology of steep Slopes	32	2	春 Spring	选修 4 学分 Optional 4 credits at least
		2022LM100202	勘探地球物理 Exploration Geophysics	32	2	春 Spring	
		2022LM100203	环境地球化学 Environmental Geochemistry	32	2	秋 Autumn	
		2022LM100204	地质体加固技术 Reinforcement Methods for Geological Body	32	2	春 Spring	
		2022LM100205	污染水文地质学 Contaminant Hydrogeology	32	2	秋 Autumn	
非学位课程 Optional Course 8 学分		2022LM110002	中国国情教育（水韵课堂） ShuiYun Seminars	16	1	秋/春 Autumn/ Spring	必修 Compulsory
		2022LM100206	水文地质数值计算 Numerical Calculation of Hydrogeology	32	2	春 Spring	选修 7 学分 Optional 7 credits at least
		2022LM100207	裂隙介质水动力学 Dynamics of Fluids in Fractured Media	32	2	春 Spring	
		2022LM100208	水井的设计与应用 Well Design and Application	32	2	秋 Autumn	
		2022LM040102	高等岩石力学 Advanced Computational Mechanics	64	4	春 Spring	
		2022LM040103	基础工程分析 I Foundation Analysis I	32	2	春 Spring	
		选修硕士课程 Optional courses for master					选修 Optional

教学环节 Academic activity	学术活动（含博导讲座）Seminars and conferences (including seminars by PhD supervisors)	必修 Compulsory
	实践活动 Practice Activity	
	科学研究 Scientific Research	

六、教学环节

1. 个人培养计划

学术学位硕士研究生入学后，应在导师指导下，在规定时间内按照培养方案和学位论文工作有关规定，结合研究方向和本人实际情况制定个人培养计划，其中学习计划在入学 2 个月内提交。

2. 学术活动

学术学位硕士研究生学术活动包括参加国内外学术会议、专家学术讲座，以及研究生学术研讨活动等。申请学位论文答辩前必须参加 10 次以上的学术交流活动，其中博导讲座至少 2 次。研究生参加学术活动必须填写相关学术活动登记本。

3. 实践活动

为培养劳动实践能力和责任意识，学术学位硕士研究生必须参加实践活动，实践活动形式包括助教、助管、助研、生产实践、社会实践等。由导师对学生实践环节的时长和效果进行考核和评价。

VI. Academic Activities

1. Study Proposal

The master students must prepare a study proposal on how they will complete the master degree by considering their research interests, advice from their research advisors, and other requirements mentioned in this document. The proposal must be submitted in two months after official registration.

2. Seminars and Presentations

Master students must participate in academic conferences, seminars by experts and PhD advisors, and discussion panels. Before their dissertation defense, master students must participate in seminars and conferences over 10 times, including at least 2 seminars by PhD advisors. All the seminars and presentations should be recorded in relevant record book.

3. Practice Activities

Master students are required to participate in practice activities to prepare professional development. Practice activities include teaching assistantship, research assistantship, management assistantship, and

industry engagement etc., which are to be assessed by the advisors.

七、论文工作

学术学位硕士学位论文研究工作必须经过文献阅读、论文选题、论文计划及开题报告、论文中期检查、科研成果产出、学位论文预审、学位论文评阅、学位论文答辩等环节。具体按照《河海大学硕士学位论文工作管理办法》和学院相关文件执行。留学硕士研究生可使用英文撰写论文。

VII. Dissertation

The dissertations of academic master students are required to complete the stages of literature review, topic selection, dissertation plan and dissertation proposal, mid-term examination, output of scientific research achievements, pre-examination, review and assessment, and dissertation defense. Detailed requirements can be referred to in “Hohai University Master's Dissertation Management Measures” and relevant documents in College of Earth Sciences and Engineering. Dissertation in English is acceptable.

八、本学科推荐阅读的重要书目、专著和学术期刊

VIII. Recommended Bibliographies, Monographs and Academic Journals of the Discipline

1. Page M M, Page C L. Electro remediation of contaminated soils [J]. Journal of Environmental Engineering, 2002, 128(3).

2. Saxena V. Spatial variation of earthquake ground motion and development of bridge fragility curves [D]: Princeton University, 2000.

3. Mackay, D.M., J.A Cherry. Groundwater contamination: pump-and-treat remediation [J]. Environmental Science and Technology. 1989, 23(6).

4. Jack E. Germak .Wind-tunnel development and trends in applications to civil engineering [J].Journal of Wind Engineering and Industrial Aerodynamics. 2003, 91(3).

5. Fielding K. Algorithm 387, Function Minization and Liner Search [J]. Communications of the ACM. 1970, 13(8).

6. Sleep B E, McClure P D. Removal of volatile semi volatile organic contamination from soil by air and stream flushing [J]. Contam Hydrol. 2001, 50(1).

7. 参考期刊：河海大学学报（自然科学版）(Journal of Hohai University(Natural Sciences))

8. 参考期刊：水利学报（Journal of Hydraulic Engineering）

9. 参考期刊：岩土工程学报（Chinese Journal of Geotechnical Engineering）

10. 参考期刊：岩土力学（Rock and Soil Mechanics）

11. 参考期刊：岩石力学与工程学报(Chinese Journal of Rock Mechanics And Engineering)

12. 参考期刊: International Journal of Heat and mass transfer

13. 参考期刊: Journal of Geophysical Research-Solid Earth

14. 参考期刊: Reviews of Geophysics

15. 参考期刊: Photogrammetric Engineering & Remote Sensing

16. 参考期刊: International Journal of Geographical Information Science

17. 参考期刊: Acta Geotechnica

18. 参考期刊: International Journal of Rock Mechanics and Mining Sciences

19. 参考期刊: Geotechnique

20. 参考期刊: Computers and Geotechnics

21. 参考期刊: Journal of Hydrology

22. 参考期刊: Computer-Aided Civil and Infrastructure Engineering

23. 参考期刊: IEEE Transactions on Intelligent Transportation Systems

24. 参考期刊: Construction and Building Materials

25. 参考期刊: Earth-Science Reviews

26. 参考期刊: Landslides

27. 参考期刊: Rock Mechanics and Rock Engineering

28. 参考期刊: Engineering Geology

29. 参考期刊: Geotextiles and Geomembranes

30. 参考期刊: Earthquake Engineering & Structural Dynamics

31. 参考期刊: Journal of Hydrology

32. 参考期刊: Hydrological Processes

33. 参考期刊: Hydrogeology Journal

34. 参考期刊: Geophysical Research Letters

35. 参考期刊: IEEE Transactions on Geoscience and Remote Sensing

36. 周志芳，王锦国，黄勇，窦智.裂隙介质水动力学原理[M].北京：地质出版社，2019.（Zhou Zhi-fang, Wang Jin-guo, Huang Yong, Dou Zhi. Hydrodynamic principle of fractured media [M] Beijing: Geology Press, 2019）

37. 李磊.污泥-生活垃圾混合填埋体强度演化及稳定性[M].北京：科学出版社，2019.(Li Lei. Strength evolution and stability of sludge domestic waste mixed landfill [M]. Beijing: Science Press, 2019)

38. 宋汉周，朱旭芬. 水电站坝址渗流水化学及其监测导论[M].北京：科学出版社，2017.（Song Han-zhou, Zhu xu-fen. Introduction to seepage water chemistry and monitoring at hydropower station dam site[M]. Beijing: Science Press, 2017）

39. 张宏兵，蒋甫玉，黄国娇.工程地球物理勘探[M].北京：中国水利水电出版社，2019.（Zhang Hong-bing, Jiang Fu-yu, Huang Guo-jiao. Engineering geophysical exploration[M]. Beijing: China Water&Power Press, 2019）

40. 魏继红，孙少锐，刘瑾，吴继敏.岩体结构面剪切破坏机理及参数识别试验研究[M].南京：河海大学出版社，2018.(Wei Ji-hong, Sun Shao-rui, Liu Jin, Wu Ji-min. Experimental study on shear failure mechanism and parameter identification of rock mass discontinuities [M]. Nanjing: Hohai University Press, 2018)

41. 魏继红，吴继敏，董志高，刘瑾.沿海滩涂地区大直径灌注桩承载性状研究[M].南京：河海大学出版社，2018.(Wei Ji-hong, Wu Ji-min, Dong Zhi-gao, Liu Jin. Study on bearing behavior of large diameter cast-in-place pile in coastal beach area [M]. Nanjing: Hohai University Press, 2018)

42. 周志芳，王锦国.地下水动力学[M].北京：中国水利水电出版社, 2021.(Zhou Zhi-fang, Wang Jin-guo. Groundwater dynamics[M]. Beijing: China Water&Power Press, 2021)

43. 王建平. 水文地质勘察技术及应用[M].北京：中国水利水电出版社，2021.(Wang Jian-ping. Hydrogeological survey technology and application [M] Beijing: China Water&Power Press, 2021)

44. 孙少锐，乐慧琳，马晓凡，刘瑾.岩石力学试验教程[M]. 南京：河海大学出版社，2020. (Sun Shao-rui, Le Hui-lin, Ma Xiao-fan, Liu Jin. Rock mechanics test course[M]. Nanjing: Hohai University Press, 2020)

45. 杨保全，龚友平.基础工程与地基处理[M].南京：河海大学出版社，2020.(Yang Bao-quan, Gong You-ping. Foundation engineering and foundation treatment[M]. Nanjing: Hohai University Press, 2020)

46. 孙树林.岩体结构图解分析[M].南京：河海大学出版社，2020.（Sun Shu-lin. Graphical analysis of rock mass structure[M]. Nanjing: Hohai University Press, 2020）

47. 孙英学，龚友平.下扬子地层区化石手册[M].南京：河海大学出版社，2021.(Sun Ying-xue, Gong You-ping. Fossil Handbook of lower Yangtze stratigraphic region[M]. Nanjing: Hohai University Press, 2021)

48. 周志芳，窦智.实验水文地质学[M].北京：科学出版社, 2015.(Zhou Zhi-fang, Dou Zhi. Experimental hydrogeology[M]. Beijing: Science Press, 2015)

49. Fetter, C. W. Contaminant hydrogeology. 2nd. edition [M], New Jersey: Prentice-Hall Inc., 1999, (Fetter 著, 周念清，黄勇译, 周志芳校，污染水文地质学（第二版）[M], 北京: 高等教育出版社, 2011)

50. Singhal B, Gupta R P. Applied hydrogeology of fractured rocks[M]. London: Taylor & Francis, 2010.

51. Krasny J. and Sharp J. M. Groundwater in fractured rocks [M]. London: Taylor & Francis, 2007.