

土木工程（0814）

学科门类：工学（08）一级学科：土木工程（0814）

一、专业描述

土木工程是一门关于基础建设的规划、建造和维护的学科。土木工程学科的特点是：以数学、力学、地质学和工程科学为基础，解决基础建设中的实际问题，强调科学素养和工程专业知识的综合运用。土木工程在大型基础设施建设如水利工程、城市建设、铁路公路、港口航道等工程领域具有广泛的应用。

河海大学土木工程学科是为江苏省一级重点学科，学科从属于土木与交通学院，前身可以追溯到 1922 年河海工程专门学校设立的“结构部”和“路工学部”。含岩土工程、结构工程、防灾减灾工程及防护工程、桥梁与隧道工程等四个二级学科。其中岩土工程学科于 1988 年被评为国家级重点学科（全国仅有两个）。以土木工程学科为依托，建立了岩土力学与堤坝工程教育部重点实验室、教育部国家外专局“堤坝工程安全与减灾学科创新引智基地”、江苏省岩土工程技术工程研究中心、江苏省建筑物裂缝控制工程技术研究中心、江苏省钢结构工程技术研究中心等平台。土木工程学科目前有近百名教学科研人员，其中包括 17 名教授，31 名博导。近年来承担国家“973”、“863”计划课题、国家科技支撑计划、国家自然科学基金重点与面上项目及重大工程科技项目等 200 多项，承接科研经费超过 1.6 亿元，获国家科技进步一等奖、二等奖、国家技术发明二等奖及省部级科学技术奖 50 多项。

二、培养目标

土木工程专业博士生的培养目标为：培养从事铁路、公路、水利等工程和堤坝、房屋、桥梁、隧道、边坡、地下工程研究工作的高层次专门人才。毕业生应具有坚实的数学、力学、地质学理论基础、系统的工程专业知识，和对复杂的工程问题正确建模分析的能力，能熟练运用现代基础理论和先进的计算方法及实验技术手段开展科学研究，能够胜任大型复杂工程的技术研究开发以及高等院校和研究机构的教学科研工作。

土木与交通学院可为学生提供良好的学术环境，学生将在资深教授（博导）的指导下，结合导师的研究课题，掌握土木工程领域的新问题与新进展，鼓励学生应用获得的知识和技能解决实际问题的能力，并在所研究的领域取得创新性成果。

三、研究方向

- 1、岩土工程
- 2、结构工程
- 3、桥梁与隧道工程
- 4、防灾与减灾工程

四、申请条件

土木工程全英文专业博士生申请人需要满足以下条件：

1. 已在我国认可的海内外高校或学术机构获得硕士学位者。
2. 能够用英语进行课程学习、阅读文献和进行学术写作，能够用英语进行日常交流。

五、培养年限

攻读博士学位的标准学制为 4 年，实行弹性学制，学习年限最短不低于 3 年，最长不超过 6 年。

六、学分要求和课程设置

本专业博士留学研究生课程总学分为 15 学分，其中学位课程为 11 学分，非学位课程为 4 学分。另设教学环节。具体开设课程见附表。

Civil Engineering (0814)

Discipline: Engineering (08)

First-Class Discipline: Civil Engineering (0814)

1. Discipline Description

Civil Engineering is a discipline of planning, designing, constructing and maintaining infrastructures. Civil Engineering is based on Mathematics, Mechanics, Geology and other Engineering principles, and is devoted to solutions of problems arising from engineering practices on infrastructures. Civil Engineering highlights the combination of scientific qualities of engineers and comprehensive implementation of professional engineering knowledge. Civil Engineering is widely used in mega-infrastructure, such as hydraulic engineering, city construction, railway and highway engineering, harbor and waterway engineering, etc.

Civil Engineering in Hohai University is a key discipline of Jiangsu Province, and is accommodated in College of Civil and Transportation Engineering (CCTE). CCTE is developed from Department of Structural Engineering and Department of Highway Engineering in Hohai Polytechnic dating back to 1922. CCTE currently consists of Department of Geotechnical Engineering, Structural Engineering, Disaster Prevention and Mitigation Engineering, as well as Bridge and Tunneling Engineering, etc. Geotechnical Engineering in CCTE was awarded as national key discipline in 1988. Based on Civil Engineering discipline, CCTE has founded Key Laboratory of Geomechanics and Embankment Engineering under Ministry of Education, Research center of Geotechnical Engineering of Jiangsu Province, Research center of building crack control technology of Jiangsu Province, as well as Research center of steel structure engineering technology of Jiangsu Province, etc. Currently Civil Engineering discipline has around 100 research faculty and staff members, including 17 professors and 31 famous PhD supervisors. Over the last few years, they have undertaken more than 200 research projects, including the topics funded by “973”, “863” programs and National key technology support program, and priority/general/major research projects funded by the National Natural Science Foundation of China (NSFC). The total research funding exceeds RMB 0.16 billion Yuan. They have won more than 50 awards, including the first and second class prizes of National Science

and Technology (S&T) Progress Awards, the second prizes of National Technological Invention Awards, and Provincial and Ministerial S&T Awards.

2. Program Description

The program in Civil Engineering aims at nurturing high-level professional individuals working on railway, highway and hydraulic engineering, and on embankment, structure, bridge, tunnel, slope as well as underground engineering. The students should be capable of (1) grasping solid fundamental knowledge in the theory of Mathematics, Mechanics, Geology, and systematic engineering professions; (2) modeling and analyzing complex technical problems; (3) using fundamental theory, advanced computational methods and experimental techniques to conduct research; (4) undertaking R&D positions in large complex projects; and (5) excelling in education and research in universities and research institutes.

The program is designed to provide students with an intellectual environment to explore the knowledge, principles and advances in Civil Engineering through research projects under the guidance of established professors (PhD supervisors). Through the program, students have opportunities to develop their problem-solving ability with new knowledge and skills, and to make their own contributions to their research fields.

3. Research Directions

- Geotechnical Engineering
- Structure Engineering
- Bridge and Tunnel Engineering
- Disaster Prevention and Mitigation Engineering

4. Application Requirements

(1) You have received the master degree from the domestic and overseas universities or academic institutions accredited by the Ministry of Education.

(2) You have the ability to read and write academic papers and communicate in English.

5. Educational System and Duration

The doctorate program is 4 years, the duration is minimum 3 years and no more than 6 years.

6. Credits and Courses

A doctoral student must take at least 15 credits of courses, including 11 credits of Required course of the degree and 4 credits of Non-required course of the degree. Module structure of the doctorate program of Civil Engineering is listed below.

土木工程全英文留学博士研究生课程设置

Courses for Doctoral Students of Civil Engineering

课程类别 Categories		课程编号 No	课程名称 Course	学时 Hours	学分 Credit	开课学期 Term	备注 Note
学位课程 11 学分 Required course of the degree 11 Credits	公共 课程 General Courses	2015LXS01	汉语 I Chinese Language I	32	2	秋 fall	必修 Required Course
		2015LXS03	中国概况 Introduction to China	32	2	秋 fall	
	基础 课程 Basic Courses	2015JC02	应用数学 Applied Mathematics	64	4	秋 fall	选修 4 学分 4 Credits at least
		2015JC05	偏微分方程的近代方法 Modern Methods in PDE	32	2	秋 fall	
	专业 课程 Major Courses	2015TM01	土木工程学科前沿专题讲座 Special Topic on Civil Mechanics	16	1	春 spring	必修
		2015LC02	高等计算力学 Advanced Computational Mechanics	32	2	春 spring	选修 2 学分 2 Credits at least
		2015TM02	高等岩土力学 Advanced Soil and Rock Mechanics	64	4	春 spring	
		2015TM03	高等结构动力学 Advanced Structural Dynamics	32	2	春 spring	
非学位课程 4 学分 Non-required course of the degree 4 Credits	2015TM04	岩土工程风险与可靠性分析 Risk and Reliability in Geotechnical Engineering	32	2	春 spring	选修 4 学分 4 Credits at least	
	2015TM05	现代土木工程数值方法 Numerical Method in Modern Civil Engineering	32	2	春 spring		
	2015LXS07	英文科技写作 The Art of Scientific Presentation and Writing in English	32	2	春 spring		
	2015LXS05	跨一级学科选修 A course in other disciplines	32	2			
	2015LXS04	第二外国语（除母语与汉语外）	32	2			
教学环节 Academic Activities	学术活动 Seminar and Conferences						必修 Required Course
	科学研究 Scientific Research						
	文献阅读与综述 Literature Reading and Reviewing						