土木工程材料（0814Z2）

学科门类：工学（08）一级学科：土木工程（0814）

一、专业描述

河海大学土木工程材料学科设置于 2003 年，是材料科学与土木工程技术交叉发展起来的一门分支学科，服务于土木、交通、水利、电力等工程。河海大学材料科学与工程学科始建于 1952 年，由建筑材料发展形成，是学校重点建设学科。1983 年开始招收“水工材料”硕士研究生，1986 年获全国第一批“建筑材料”硕士点，2006 年获“材料科学与工程”一级学科硕士点。现有专任教师 40 余人，其中 90%以上具有博士学位，60%以上具有一年以上海外进修经历。

近年来，本学科紧密结合地方和行业发展需求，依托河海大学优势学科平台建设，承担了大量纵、横向科研课题。在大坝、桥梁、轨道交通、矿井等工程的高性能混凝土研究与应用，重大混凝土材料的力学特性与本构关系，结构修复防护新材料新技术，新型墙体材料的研制开发，利用固体废料制造工程新材料及工程材料和工程结构的检测评估与修复加固，高性能金属结构件及其使役性能提升等方面取得了显著成果，形成了学科优势和特色。

二、培养目标

掌握木木工程材料学科领域内坚实宽广的基础理论、系统深入的专门知识和技能方法；具有较高的英语水平和计算机应用能力，对土木工程材料学科的现状和发展趋势有深入全面的了解，具有独立与创

造性从事本学科科学研究和有效解决工程实际技术问题的能力，能够胜任大型复杂工程的技术研究开发、高等院校和研究机构的教学和科研工作。

三、研究方向

1．混凝土材料（Concrete Materials）

2．复合材料（Composites）

3、新型建筑材料（New Construction Materials）

4．金属结构材料（Structural Metallic Materials）

5．土工合成材料（Geotechnical Synthetic Materials）

四、申请条件

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 10 学分，非学位课程为 5 学分。另设教学环节。具体开设课程见附表。

CivilEngineering Materials (0814Z2)

Discipline: Engineering (08)

First-Class Discipline: Civil Engineering （0814）

1. Discipline Description

The discipline of Civil Engineering Materials in Hohai University (hereinafter referred to as HHU-CEM) started from 2003. It is a second-grade interdisciplinary field involving Materials Science and Civil Engineering Technique, to provide the material foundation and technical guides for civil engineering, transportation engineering, water conservancy and related engineering construction. Having developed and grown from the Department of Building Materials which was founded as early as 1952, Materials Science and Engineering is now the key academic discipline at Hohai University. It launched the first graduate program in Hydraulic Structure Materials for Master's degrees in 1983, was one of the first institutes granted to award Master's degrees in Building Materials in 1986, was authorized to award Master's degrees in Materials Science and Materials Processing Engineering in 1996, established Doctoral program and Master's degree program in Civil Engineering Materials in 2003, was authorized to award the first-grade discipline Master's degree program in Materials Science and Engineering in 2006. Currently HHU-CEM has a strong, stable and dynamic academic team with more than 40 academic staff members. The percentages of faculty members with Ph.D. Degrees and more than 1 year of abroad study or work experience are more than 95% and 60 %, respectively.

With the overall goal of Hohai University to be a high level research university and building up a group of water-cored disciplines to promote interdisciplinary research and form discipline summits, based on advantageous disciplinary platforms such as National Engineering Research Center for High Efficiency Utilization of Water Resources and Engineering Safety, Provincial Research Center for New Hydraulic Materials and Protection Engineering, HHU-CEM is striving to serve the society, to evolve into the world-famous discipline in water conservancy industry and

to become a major base in China for the fundamental research in the field of hydraulic materials to solve key scientific problems, for the technological innovation and high level talented-person cultivation by developing hydraulic engineering-oriented novel marine materials and energy materials as the new growth points. The Discipline of HHU-CEM has unique and distinguishing features in developing high performance concrete materials, studying the durability of materials and exploring novel materials for structural repairment.

The faculty members of HHU-CEM are engaged in various research projects in the areas of preparing and applying high-performance concrete materials (used for building dams, bridges, rail transit and mines), studying the mechanical property of key engineering materials, exploring novel repairing materials and technologies, and developing high performance metallic materials, etc. All these researches greatly promote the development of high performance materials which can prolong the service lives of the major engineering projects and therefore provide a strong technical guarantee for the social and economic development and ecological environment protection. So far, these researches has published hundreds of high quality scientific articles in refereed journals and conference proceedings and received dozens of national, ministerial and provincial awards.

2. Program Description

(1) To have practical, realistic and scientific attitude, and to generate proper, meticulous and honest academic atmosphere; to connect theory with practice; to be good at intensive study and teamwork.

(2) To thoroughly command fundamental and broad theories, as well as systemic and in-depth professional knowledge of MaterialsScience and Civil Engineering Technology; to be able to perform scientific or engineering work independently and creatively.

(3) To completely understand the current situation and future trend of MaterialsScience and Civil Engineering Technologyand the latest development of relevant research fields; to be capable of performing teaching and technology management in relevant fields.

3. Research Directions

- Concrete Materials
- Composites
- New Construction Materials
- Structural Metallic Materials
- Geotechnical Synthetic Materials

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 10 credits of required course of the degree and 5 credits of Non-required course of the degree.

土木工程材料全英文留学博士研究生课程设置

Courses for Doctoral Students of CivilEngineering Materials

课程类别 Categories		课程编号 Course No	课程名称 Course Name	学时 Hours	学分 Credits	开课学期 Term	备注 Note
学位课 10 学分 Required course of the degree 10 Credits	公共课程 General Courses	2015LXS01	*汉语 Chinese Language I	32	2	秋 fall	必修课 Required Course
		2015LXS03	*中国概况 Introduction to China	32	2	秋 fall	
	专业基础课程 Major BasicCourses	2015JC02	应用数学 Applied Mathematics	64	4	春 spring	选修 2 学分 2Credits at least
		2015JC05	偏微分方程近代方法 Modern Methods in Partial Differential Equations	32	2	秋 fall	
		2015JC07	可靠性分析 Reliability Analysis	32	2	秋 fall	
	专业课程 Major Courses	2017LC11	土木工程材料学科前沿专题 Special Topic inCivil Engineering Materials	32	2	春 spring	必修课 Required Course
		2017LC02	材料形变与断裂 Plastic Deformation and Fracture	32	2	春 spring	选修 2 学分 2Credits at least
		2017LC03	现代混凝土技术 Modern Concrete Technology	32	2	春 spring	
		2017LC04	新型复合材料 New Composite Materials	32	2	春 spring	
非学位课 5 学分 Non-required course of the degree 5 Credits		2015LXS07	英文科技写作 The Art of Scientific Presentation and Writing in English	32	2	春 spring	必修课 Required Course
		2015LXS04	*第二外国语 Second Foreign Language (without general courses)	32	2		选修 3 学分 3Credits at least
		2017LC05	材料表面与界面 Surface and Interface of Materials	32	2	春 spring	
		任选本一级学科内博士非必修课程 Non-required Doctoral Courses of the First-level Discipline		32	2		
		跨一级学科选修博士课程 Non-general Doctoral Courses of Other First-level disciplines		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					