

水工结构工程（081503）

学科门类：工学（08）一级学科：水利工程（0815）

一、专业描述

河海大学水工结构工程学科创建于1952年，1981年获硕士、博士学位授予权，1990年建立博士后流动站，1996年被确定为水利部重点学科，1997年成为国家“211工程”重点建设学科，1999年设立教育部长江学者奖励计划特聘教授岗位，2001年被评为国家重点学科，同年成立教育部水利水电工程安全工程研究中心，2002年成立了南京土工合成材料工程技术研究中心。

我校水工结构工程学科注重基础及应用基础研究，紧跟国际前沿，围绕国家重大需求，先后承担了国家自然科学基金、国家973计划、国家科技支撑计划、国家重点研发计划以及长江三峡、二滩、小湾、小浪底、锦屏、糯扎渡、南水北调等众多重大水利水电工程的科研课题，取得了大量科研成果及显著的社会和经济效益。

二、培养目标

本学科旨在培养本学科领域的高层次人才。在本门学科上掌握坚实宽广的基础理论和系统深入的专门知识；具有独立从事科学研究工作的能力；在科学或专门技术上做出创造性的成果。熟练阅读本专业外文文献，具有较强的英文写作和国际学术交流能力。

三、研究方向

1. 高坝及坝基安全监控理论、方法和技术（Safety Monitoring

- Theories, Methods and Techniques for High Dams and Their Foundations)
2. 坝工设计计算理论与试验技术 (Computation Theories and Experimental Techniques for Dam Designs)
 3. 高边坡及地下工程 (High Slopes and Underground Engineering)
 4. 大型水闸、船闸及输水结构 (Sluices, Ship Locks and Water Transport Structures)
 5. 水工混凝土新材料新工艺 (Materials and Construction for Hydraulic Concrete Structures)

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 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。

Hydraulic Structure Engineering (081503)

Discipline: Engineering(08)

First-Class Discipline: Water Conservancy (0815)

1. Discipline Description

The discipline of Hydraulic Structure Engineering in Hohai University was founded in 1952. The discipline was qualified for awarding master and doctoral degree in 1981 and the post-doctor research workshop was established in 1990. In 1996, the discipline was awarded a key discipline of Ministry of Water Resources and was chosen as a key discipline of national "211 Project" in 1997. The set-up of "Cheung Kong Scholars Program" Distinguished Professor position of the Ministry of Education was approved in 1999. The discipline of hydraulic structure engineering was awarded a national key discipline in 2001, and safety engineering research center of water conservancy and hydropower engineering of the Ministry of Education was established in the same year. Nanjing geosynthetics engineering technology research center was set up in 2002.

The discipline of Hydraulic Structure Engineering has been focusing on basic and applied research, following closely the international development in this field and meeting the national strategic demand. Many high-level research missions were accomplished, such as National Natural Science Foundation of China, National 973 Program, National Science-Technology Support Program and National Key R & D Plan, as well as some major water conservancy and hydropower engineering research projects, for instance, Yangtze River Three Gorges, Ertan, Xiaowan, Xiaolangdi, Jinping, Nuozhadu hydropower station and South-to-North Water Diversion project. A large number of scientific research achievements and significant social and economic benefits were obtained.

2. Program Description

The program aims at cultivating high-level professional individuals in the fields of hydraulic structure engineering. The candidate should: 1) be equipped with

comprehensive fundamental knowledge and theory in this discipline; 2) be capable of doing research work independently in the scientific research; 3) make creative achievements in scientific and expertise fields; 4) read the English documents and papers proficiently in this discipline and related fields, and have a strong ability to write English documents and be active in the international academy communication.

3. Research Directions

- Safety Monitoring Theories, Methods and Techniques for High Dams and Their Foundations
- Computation Theories and Experimental Techniques for Dam Designs
- High Slopes and Underground Engineering
- Sluices, Ship Locks and Water Transport Structures
- Materials and Construction for Hydraulic Concrete Structures

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.

水工结构工程全英文留学博士研究生课程设置

Courses for Doctoral Students of Hydraulics Structure 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 Chinese Language	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	春 Spring	选修 4 学分 4 Credits at least
		2015JC03	数值分析 Numerical Analysis	48	3	秋 fall	
	专业课程 Major Courses	2017SD13	水利工程学科前沿专题 Special Topics on Water Conservancy	16	1	春 Spring	必修 Required Course
		2017SD17	水工建筑物安全监控理论及其应用 Safety Monitoring Theory and Its Application for Hydraulic Structures	32	2	春 Spring	选修 2 学分 2 Credits at least
		2017SD18	离散单元法与粒状体力学 The Discrete Element Method and Mechanics of Granular Materials	32	2	春 Spring	
		2017SD19	水利工程安全管理 Safety Management of water Conservancy Project	32	2	秋 fall	
非学位课程 4 学分 Non-required course of the degree 4 Credits	2015LXS07	英文科技写作 The Art of Scientific Presentation and Writing in English	32	2	秋、春 fall, spring	必修 Required Course	
	2015LXS05	跨一级学科选修博士课程 A course in other 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						