

# 测绘科学与技术（0816）

学科门类：工学（08）一级学科：测绘科学与技术（0816）

## 一、专业描述

测绘科学与技术是地球科学的一个分支学科，主要研究内容是对地理表面、空间距离以及海洋深度与阔度进行测量描绘、数据收集与信息整理。测绘科学与技术一级学科包含：大地测量学与测量工程、摄影测量与遥感、地图制图学与地理信息工程等三个二级学科。本一级学科，专注于培养具备地面测量、海洋测量、空间测量、摄影测量、多源遥感信息处理以及地理信息系统开发与应用等方面的知识的人才，使其能在国民经济各部门从事国家基础测绘建设、陆海空运载工具导航与管理、城市和工程建设、矿产资源勘察与开发、国土资源调查与管理、地图与地理信息系统的设计实施和研究、环境保护与灾害预防等领域的工作。

本学科于 1993 年取得“大地测量学与测量工程”硕士学位授权点，1998 年取得“摄影测量与遥感”硕士学位授权点，2005 年获批“测绘科学与技术”一级学科硕士学位授权点。学科还设有“大地测量学与测量工程”博士学位授权点和“测绘科学与技术”博士后流动站，以及“测绘工程”专业学位授权点。学科在精密工程测量、变形监测、摄影测量技术、遥感信息获取与反演、3S 集成技术、GIS 开发与应用等方向形成了鲜明的特色，在国内外具有较高的知名度，在 2004、2008 和 2012 年教育部公布的全国测绘学科综合实力排名中，河海大学测绘学科均位于前列。依托测绘工程研究所、遥感空间

信息工程研究所、水利建设 3S 技术应用联合实验室（与香港理工大学共建）以及江苏省测绘教学示范中心、测绘工程实验室等平台，具有良好的科研及研究生培养环境。实验室配备先进的测量仪器、软件开发平台。毕业生的主要就业方向为各类设计院、科研机构、高等院校以及国土、城建、规划等政府相关部门。

## 二、培养目标

培养测绘领域的高层次人才，能够胜任本学科科学研究、高等教育、大型工程建设及技术研发与管理等方面工作。具有扎实的大地测量学与测量工程、摄影测量与遥感、地理信息系统的基础理论，掌握测绘学科理论与技术研究的前沿动态，具备从事科学研究的基本素质和独立承担专业工作的技术能力，具有综合运用学科理论和技术解决生产与科研问题的能力。

## 三、研究方向

测绘科学与技术专业全英文硕士生培养计划包括（但不限于）以下研究方向：

- 1、大地测量学与测量工程
- 2、摄影测量与遥感
- 3、地图制图学与地理信息工程
- 4、导航与位置服务
- 5、地下空间测量
- 6、海洋测绘

#### 四、申请条件

测绘科学与技术专业硕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本科学位者。
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

攻读学术型硕士学位的标准学制为 3 年，实行弹性学制，学习年限最短不低于 2 年，最长不超过 5 年。

#### 六、学分要求和课程设置

硕士生需要完成总学分为 28 学分的课程学习，其中学位课程为 19 学分，非学位课程为 9 学分。另设教学环节。硕士生还必须结合研究课题完成一篇硕士论文，并通过答辩。测绘科学与技术专业硕士课程设置如下表。

# **Surveying and Mapping (0816)**

Discipline: Engineering (08)

First-Class Discipline: Surveying and Mapping (0816)

## **1. Discipline Description**

Surveying and Mapping is a branch of Earth Sciences which the main research content is the measurement and collection of data and information about the physical earth and our environment. It contains three sub-disciplines: Geodesy and Survey Engineering, Photogrammetry and Remote Sensing, and Cartography and Geographic Information Systems (GIS). This discipline focused on training engineering and technical personnel who have the knowledge of topographic surveys, hydrographic surveys, spatial measurements, photogrammetry and remote sensing, remote sensing information processing, GIS development and applications, etc. And these professionals are engaged in the surveying and mapping works such as national basic surveying and mapping projects, vehicle navigation and management, city and engineering construction, mineral resources exploration and exploitation, territorial resources surveys and management, environmental protection and disaster prevention, and implementation and research of Cartography and GIS.

The Master Program of Geodesy and Survey Engineering of Hohai University was set up in 1993, Photogrammetry and Remote Sensing in 1998, Surveying and Mapping Engineering in 2001, and the discipline of Surveying and Mapping in 2005. The doctoral degree program of Geodesy and Surveying Engineering was established in 2003 and later in 2007 the post-doctoral research station. The Surveying and Mapping had an extensive popularity both at home and abroad, which formed distinct characteristics in Precise Engineering Surveying, Deformation Monitoring, “3S” Integration Technology, etc. These platforms, such as the Surveying and Mapping Engineering Institute, the Remote Sensing and Space Information Engineering Institute, the “3S” Technology and Application United Laboratories of Water Conservancy Construction (Cooperating with the Hong Kong Polytechnic University), Surveying and Mapping Engineering Laboratory, provided students with a favorable academic environment.

## **2. Program Description**

The program in and Surveying and Mapping aims at cultivating high-level individuals with solid fundamental knowledge in the field of surveying and mapping and specialized in a particular engineering application, who are capable of handling complex technical problems in large engineering projects, can undertake research and development project in large engineering companies or teaching and research work in academic institutions. 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 field.

### **3. Research Directions**

The Master program in Surveying and Mapping is mainly oriented (but not limited) to the following research areas:

- Geodesy and Survey Engineering
- Photogrammetry and RemoteSensing
- Cartography and Geographic Information Engineering
- Navigation and location services
- Underground Engineering Surveying
- Hydrographic Surveying and Charting

### **4. Application Requirements**

(1) You have received the bachelor 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 master program is 3 years; the duration is minimum 2 years and no more than 4 years.

### **6. Credits and Courses**

In accordance with the code of graduate study in Hohai University, the Master Program requires students to complete 28 credits of course study and participating other academic activities for graduation, among which 19 credits are required course of the degree, and 9 credits are Non-required course of the degree. A research thesis is also required for obtaining the academic degree. A list of the courses is presented below.

## 测绘科学与技术全英文留学硕士研究生课程设置

### Courses for Master Students of Surveying and Mapping

课程类别 Categories		课程编号 No	课程名称 Course	学时 Hours	学分 Credits	开课学期 Term	备注 Note
学位课程 19 学分 Required course of the degree 19 Credits	公共课 General Courses	2015LXS01	*汉语 I Chinese Language I	32	2	秋 fall	必修课 RequiredCo urse
		2015LXS02	*汉语 II Chinese Language II	32	2	春 spring	
		2015LXS03	*中国概况 Introduction to China	32	2	秋 fall	
	专业基础 课程 Major BasicCou rses	2015JC03	*数值分析 Numerical Analysis	48	3	秋 fall	必修课 RequiredCo urse
		2015JC04	*最优化方法 Optimization Methods	32	2	秋 fall	
	专业课程 Major Courses	2015DX01	现代大地测量学 Modern Geodesy	32	2	春 spring	选修 8 学分 8 Credits at least
		2015DX02	最优估计理论在空间大地测量中应用 Application of Optimal Estimation Theory in Space Geodesy	32	2	春 spring	
		2017DX04	全球导航卫星系统原理及应用 Global Navigation Satellite System Principle and Application	32	2	秋 fall	
		2015DX03	GIS 空间分析 GIS and Spatial Analysis	32	2	春 spring	
		2015DX07	环境大地测量学 Environmental Geodesy	32	2	秋 fall	
		2015DX06	遥感科学与进展 Frontiers of Remote Sensing Science	32	2	春 spring	
	非学位课程 9 学分 Non-required course of the degree 9 Credits	2015LXS05	*跨学科选修 Interdisciplinary Elective	32	2		必修课 Required Course
2015LXS06		*综合素质课 Comprehensive Quality	16	1			
2015DX04		大地测量学与测量工程学科前沿专题 讲座 Special Topic on Geodesy and Surveying Engineering	32	2	春 spring	选修 6 学分 6 Credits at least	
2017DX05		高光谱遥感 Hyperspectral Remote Sensing	32	2	春 spring		
2017DX06		微波遥感 Microwave Remote Sensing	32	2	春 spring		
2017DX08		计算机视觉 Computer Vision	32	2	春 spring		
2017DX09		卫星导航定位算法与程序设计 Satellite Positioning Algorithm and Program Design	32	2	秋 fall		
2015DX05		遥感地学分析 Remote Sensing Geo-Analysis	32	2	春 spring		
2017DX03		区域发展规划 Regional Developing Plan	32	2	秋 fall		
2017DX01		高级遥感 Advanced Remote Sensing	32	2	春 spring		
2017DX02		数字高程模型 Digital Elevation Model	32	2	春 spring		
教学环节 Academic Activities		*学术活动 Seminar and Conferences					
	*科学研究 Scientific Research						
	*文献阅读与综述 Literature Reading and Reviewing						