

# 信息与通信工程（0810）

学科门类：工学（08）一级学科：信息与通信工程（0810）

## 一、专业描述

河海大学“信息与通信工程”学科源于我校基础理论及电子学工程系的无线电设计与制造专业（1960-1962）。1998年获批“通信与信息系统”二级学科硕士点，2003年获批“信号与信息处理”二级学科硕士点，2005年和2011年分别获批“信息与通信工程”一级学科硕士点和一级学科博士点。2008年通信工程专业获批江苏省精品专业，2010年评为国家特色专业。

学科围绕“信息获取与处理、通信传输、领域应用”信息链，以行业重大需求为导向，在信息获取与处理、遥感与遥测、通信网与专用通信系统、多维信号处理、雷达探测与信号处理等几个方向形成了与国际研究前沿/热点接轨、与工程应用技术紧密结合的鲜明特色。本一级学科现有教授13名，博导11名，其中海外取得博士学位占专任教师总人数的31.1%，45岁以下青年教师具有海外留学经历的比例为100%。学科还拥有江苏省海洋监测设备与数据处理工程中心和江苏省水灾害监控与决策支持系统工程中心。研究生就业单位有机关事业单位、高校和科研机构、大中型IT企业等。

## 二、培养目标

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。

### 三、研究方向

- 1、信息处理(Signal and Information Processing)
- 2、通信与信息系统(Communication and Information System)
- 3、遥测与信息网络(Telemetering and Information Network)
- 4、微波技术与应用 (Microwave Technology and Its application)
- 5、智能信息系统 (Intelligent Information System)
- 6、移动通信系统 (Mobile Telecommunications System)
- 7、物联网技术与应用 (Internet of things and its Application)
- 8、人工智能与大数据 (Artificial Intelligence and Big Data)

### 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。

## **Information and Communication Engineering (0810)**

Discipline: Engineering (08)

First-Class Discipline: Information and Communication Engineering (0810)

### **1. Discipline Description**

The discipline of Information and Communication Engineering of Hohai University derives its origin from the discipline of Radio Design and Manufacture in the department of Electronic (1960-1962). It is approved as the secondary master discipline in 2003, followed by the approval of the first-class master and doctoral disciplines in 2005 and 2011 respectively. Furthermore it was also authorized as elite program of Jiangsu Province and national specialty in 2008 and 2010.

The discipline embraces the information processing chain from signal gathering and processing, communication/transmission and application in various domains. Led by the industrial major demands, the discipline forms a close integration with industry and international track in hot research areas including signal gathering and processing, remote sensing, communication system, multivariate signal processing, radar detection and signal processing. The first-class discipline currently has 13 professors, 11 PhD supervisors and 31.1% faculties with overseas doctoral degrees. All faculties under the age of 45 have overseas experiences. The discipline also has Ocean Monitoring Equipment and Data Processing centre of Jiangsu Province and Flooding Monitoring and Decision Support System Engineering Center of Jiangsu Province. Graduates mostly begin careers in governments, universities/scientific research institutions and medium and large IT enterprises.

### **2. Program Description**

Graduates shall have the capacity of both fundamental theories and systematic in-depth expertise knowledge in the above discipline .and be capable of conducting scientific research with independence.

### **3. Research Directions**

The PhD program in Information and Communication Engineering is mainly

oriented (but not limited) to the following research areas:

- Signal and Information Processing
- Communication and Information System
- Telemetry and Information Network
- Microwave Technology and Its application
- Intelligent Information System
- Mobile Telecommunications System
- Internet of things and its Application
- Artificial Intelligence and Big Data

#### **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.

## 信息与通信工程全英文留学博士研究生课程设置

### Courses for Doctoral Students of Information and Communication 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 RequiredCourse
		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
		2015JC08	矩阵论 Matrix Theory	32	2	秋 fall	
	专业课程 Major Courses	2017JX27	学科前沿专题 Modern Science of the Discipline	16	1	秋 fall	必修 RequiredCourse
		2015JX03	现代数字信号处理 Modern Digital Signal Processing	32	2	秋 fall	选修 2 学分 2 Credits at least
		2015JX02	视频图像处理 Video Image Processing	32	2	秋 fall	
		2017CZ04	图像处理与分析 Image Processing and Analysis	32	2	秋 fall	
		2017CZ01	移动通信 Mobile Telecommunications	32	2	秋 fall	
	非学位课程 4 学分 Non-required course of the degree 4 Credits	2015JX04	数字通信 Digital Communication	32	2	春 spring	选修 4 学分 4 Credits at least
2017JX17		模式识别新技术 New technology for pattern recognition	32	2	秋 fall		
2015LXS07		科技论文写作 Academic Paper Writing	32	2	春 spring		
2017CZ02		智能计算 Intelligent Computing	32	2	秋 fall		
2015LXS05		跨学科选修 Interdisciplinary Optional  数据管理与分析技术 Data Management and Analysis Technology ----- 或 (or) ----- 神经网络 Artificial Neural Networks ----- 或 (or) ----- 分布计算与分布式系统 Distributed Computing & systems	32	2			
教学环节 Academic Activities	学术活动 Seminar and Conferences						必修 RequiredCourse
	科学研究 Scientific Research						
	文献阅读与综述 Literature Reading and Reviewing						