**Hydrology and Water Resources（081501）**

Discipline：Engineering（08）

First-Class Discipline：Hydraulic Engineering（0815）

**1. Discipline Description**

Hydrology and water resources is a discipline that mainly studies the formation, distribution and movement of water on the earth. It also studies the fundamental theory and techniques on flood/drought prevention, water resources development and utilization, aquatic environment protection and, hydraulic project operation and management. As an important branch of the discipline of hydraulic engineering, hydrology and water resources has the nature of both basic science and applied science. The discipline of hydrology and water resources plays an important role in the practices of understanding, adapting to transforming the nature.

The first discipline of hydrology and water resources in China was founded at East China Technical University of Water Resources (the former Hohai University) in 1952 by Prof. Liu Guangwen, a renowned hydrological scientist. The discipline was qualified for granting bachelor, master and doctoral degree in 1981, and was authorized as national key discipline in 1988, 2002 and 2007. In 1990, it was funded by World Bank’s Key Discipline Development Program. National Specialized Laboratory of Water Resources Development and Utilization was founded in 1993. In 1996 the discipline of Hydrology and Water Resources was sponsored by the Key Discipline Construction Program of “211” Project. In 1997, UNESCO established the International Training and Research Center for Hydrology-Water Resources and Environment at Hohai University. In 2001, the Ministry of Education’s Key Laboratory of Water Resources Development was established in Hohai University, and in the same year the discipline of hydrology and water resources was enrolled in the Key Discipline Construction Program under the sponsor of the Tenth Five-Year National Plan and “211” Project. In 2004 and 2005, State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering Sciences and National Engineering Research Center of Water Resources Efficient Utilization and Engineering Safety were founded respectively.

The discipline of hydrology and water resources has significant advantages with distinctive academic characteristics, a comprehensive academic team and solid academic foundation. According to the evaluation by the Ministry of Education in 2002, the discipline was ranked as the top best in China. The discipline of Hydrology and Water Resources has several renowned academic leaders and a team of academic cadre with solid theoretical foundation and rich academic experiences. Currently the discipline has 60 faculties including over 30 professors and 21 associate professors. 85% of who has the doctor’s degree. Since the Eleventh Five-Year National Plan, the discipline has undertaken 766 research projects with total funds of 338 million Yuan, and published 2200 papers and over 50 academic and course books. In addition, the discipline received 44 prizes, including 2 National Prizes for Progress in Science and Technology. Authorized by UNESCO and WMO, the discipline of hydrology and water resources has trained more than 200 senior talents of hydrology, water resources and water environment.

**2. Program Description**

The program in Hydrology and Water Resources aims at cultivating high-level academic individuals with comprehensive fundamental knowledge and theory of hydrology and water resources, who are capable of getting insight into the status and development trend of hydrological science, and have good international visions, honest and team-work spirits. The program also aims at training high-level researchers who know about Chinese culture, are able to use the Chinese language for daily communication, and have the ability of using computers and English to carry out scientific research and academic exchange.

The program is designed to provide students with an intellectual environment to explore the knowledge and principles in hydrology and water resources through research project under guidance of an experienced supervisor. 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 PhD program in Hydrology and Water Resources is mainly oriented (but not limited) to the following research areas:
* Watershed hydrological simulation and forecasting
* Theory of hydrological uncertainty and application
* Water resources planning and management
* Numerical simulation and utilization of groundwater
* Theory and techniques of hydroinformatics
* Ecohydrology and environmental hydrology
* Applied hydrometeorology

**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 5 years.

**6. Credits and Courses**

A master student must take at least 28 credits of courses, including 18 credits of required course of the degree and 10 credits of Non-required course of the degree. A dissertation of the research subject and an oral defense are also required. Module structure of the doctorate program of Hydrology and Water Resources is listed below.

**水文学及水资源全英文留学硕士研究生课程设置**

**Courses for Master Students of Hydrology and Water Resources**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 课程类  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  19学分  Required course of the degree  19 Credits | 公共课程  General Courses | 2015LXS01 | \*汉语Ⅰ  Chinese Language Ⅰ | 32 | 2 | 秋  fall | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS02 | 汉语Ⅱ  Chinese Language Ⅱ | 32 | 2 | 春  spring |
| 2015LXS03 | \*中国概况  Introduction to China | 32 | 2 | 秋  fall |
| 学科基础课程  Discipline Basic Courses | 2015JC03 | 数值分析  Numerical Analysis | 48 | 3 | 秋  Fall | 选修  6学分  6Credits  at least |
| 2015JC04 | 最优化方法  Optimization Methods | 32 | 2 | 秋  Fall |
| 2015JC01 | 数学物理方程 Partial Differential Equations | 32 | 2 | 春  Spring |
| 2015JC02 | 应用数学 Applied Mathematics | 72 | 4 | 春  Spring |
| 专业课程  Major Courses | 2015SW04 | 地下水数值模拟  Numerical Simulation of Groundwater | 18 | 1 | 春  Spring | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015SW05 | 环境水力学  Environmental Hydraulics | 32 | 2 | 春  Spring |
| 专业基础课程  Major [Basic](app:ds:specialized)[Courses](app:ds:courses) | 2015SW06 | 现代水文模拟及预报  Modern Hydrological Modeling and Forecasting | 32 | 2 | 春  Spring | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015SW07 | 水资源规划与管理  Water Resources Planning and Management | 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  A course in other disciplines | 32 | 2 |  | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS06 | 综合素质课  Comprehensive Quality | 18 | 1 |  |
| 2015SW08 | 水信息采集与处理  Collection of Water Information and Data Processing | 32 | 3 | 春  Spring | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015SW09 | 水环境数学模型  Mathematic Model of Water Environment | 32 | 2 | 春  Spring |
| 2015LXS07 | 英文科技写作  The Art of Scientific Presentation and Writing in English | 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 | | | | |

**Hydraulics and River Dynamics（081502）**

Discipline: Engineering (08)

First-Class Discipline: Water Conservancy (0815)

1. **Discipline Description**

The discipline of hydraulics and river dynamics of Hohai University in 1981 became the first batch of master's degree, doctoral degree grant, in 1990 established a postdoctoral station, in 1994 became the first batch of key disciplines in Jiangsu Province, in 2007 became the national key disciplines. Itis also the national "211 Project" key construction disciplines. “National Engineering Research Center of Water Resources Efficient Utilization and Engineering Safety” and “State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering” are the research support platform of this subject.

Over the years, combined with China's major water conservancy construction and river development and utilization of the practice, the discipline in the hydraulic hydraulics, ecological environment hydraulics and plain river hydrodynamics research has obvious advantages and advanced disciplines characteristics. The research areas include engineering hydraulics, sediment engineering and river management, water information technology, engineering infiltration flow and groundwater environment, modern fluid testing technology and so on. Research results have been widely used in China's river management, hydropower, water transportation, water supply and drainage, environmental ecological water conservancy, soil and water conservation and many other fields.

1. **Program Description**

The program aims to foster highly qualified specialists in the field of Hydraulics and River Dynamics with the consolidation of their basic theories, systematic professional knowledge and necessary engineering practice, and the development of their ability on scientific research and technological work. They should fully understand the frontier technology and development trend in this research field, read the English documents and papers frequently in this discipline and related fields, have a strong ability to write English documents and be active in the international academy communication. They are able to solve the technical problems and carry out their research work with the proficient application of the fundamental theories, advanced computational methods and experimental technology, and then be fully qualified for the work on higher education, scientific research, planning, design and management.

1. **Research Directions**

* River Management, Aquatic Ecology and Environment
* Theory and Applications of Engineering Hydraulics
* Flow, Sediment Transportation and It Application in River Engineering
* Engineering Seepage and Ground water Environment
* Computational Hydraulics and Hydro informatics

1. **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 5 years.

**6. Credits and Courses**

A master student must take at least 28 credits of courses, including 19 credits of required course of the degree and 9 credits of Non-required course of the degree.

**水力学及河流动力学全英文留学硕士研究生课程设置**

**Courses for Master Students of Hydraulics and River Dynamics**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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  19学分  Required course of the degree  Courses  19 Credits | 公共课程  General Courses | 2015LXS01 | | \*汉语Ⅰ  Chinese Language Ⅰ | 32 | 2 | 秋  fall | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS02 | | 汉语Ⅱ  Chinese Language Ⅱ | 32 | 2 | 春  spring |
| 2015LXS03 | | \*中国概况  Introduction to China | 32 | 2 | 秋  fall |
| 学科基础课程  Discipline Basic Courses | 2015JC03 | | 数值分析 Numerical Analysis | 48 | 3 | 秋  fall | 选修  5学分  5 Credits  at least |
| 2015JC04 | | 最优化方法 Optimization Methods | 32 | 2 | 秋  fall |
| 2015JC01 | | 数学物理方程 Partial Differential Equations | 32 | 2 | 春  spring |
| 专业基础课程  Major [Basic](app:ds:specialized)[Courses](app:ds:courses)s | 2017SD01 | | 河流动力学  River Mechanics | 32 | 2 | 春  spring | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2017SD06 | | 工程紊流的数值模拟方法  Numerical Simulation Methods for Engineering Turbulence | 32 | 2 | 秋  fall |
| 2017SD07 | | 工程水动力学及应用  Engineering Hydrodynamics and Applications | 32 | 2 | 春  spring |
| 专业课程  Major Courses | 2017SD08 | | 多孔介质中的水流与溶质运移  Flow and Transport in Porous Media | 32 | 2 | 春  spring | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 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  Required Course |
| 2015LXS06 | \*综合素质课Comprehensive Quality | | 16 | 1 |  |
| 2015JC26 | | 计算机辅助设计 Computer-Aided Design | 32 | 2 | 春  spring |
| 2015JC25 | | 程序设计方法 Methods of Programming | 32 | 2 | 秋  fall |
| 2015LXS07 | | 英文科技写作  The Art of Scientific Presentation and Writing in English | 32 | 2 | 秋、春  fall  or spring |
| 教学环节  Academic Activities | | 学术活动  Seminar and Conferences | | | | | | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 科学研究  Scientific Research | | | | | |
| 文献阅读与综述  Literature Reading and Reviewing | | | | | |

**Hydraulics 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 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 advanced 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 or undertaking expertise work independently in the scientific research; 3) read the English documents and papers in this discipline and related fields, 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

1. **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 5 years.

**6. Credits and Courses**

A master student must take at least 28 credits of courses, including 19 credits of required course of the degree and 9 credits of Non-required course of the degree.

**水工结构工程全英文留学硕士研究生课程设置**

**Courses for Master 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  19学分  Required course of the degree  19 Credits | 公共课程General Courses | 2015LXS01 | \*汉语Ⅰ  Chinese Language Ⅰ | | 32 | 2 | 秋  fall | | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS02 | 汉语Ⅱ  Chinese Language Ⅱ | | 32 | 2 | 春  spring | |
| 2015LXS03 | 中国概况  Introduction to China | | 32 | 2 | 秋  fall | |
| 学科基础  课程Discipline Basic Courses | 2015JC03 | 数值分析  Numerical Analysis | | 48 | 3 | 秋  fall | | 选修  5学分  5 Credits  at least |
| 2015JC04 | 最优化方法  Optimization Methods | | 32 | 2 | 秋  fall | |
| 2015JC01 | 数学物理方程  Partial Differential Equations | | 32 | 2 | 春  spring | |
| 专业基础  课程  Major [Basic](app:ds:specialized)[Courses](app:ds:courses) | 2017SD09 | 水工结构有限元分析  Finite Element Method For Hydraulic Structure | | 64 | 4 | 秋  fall | | 选修  6学分  6 Credits  at least |
| 2015JC09 | 弹性力学  Elastic Mechanics | | 32 | 2 | 秋  fall n | |
| 2015LC05 | 塑性力学  Plastic Mechanics | | 32 | 2 | 春  spring | |
| 专业课程Major Courses | 2017SD02 | 高等水工结构学  Advanced Hydraulic Structure | | 32 | 2 | 春  spring | | 选修  2学分  2 Credits  at least |
| 2017SD10 | 大坝安全监控理论与应用  Dam Safety Monitoring Theory and Its Application | | 32 | 2 | 春  spring | |
| 2017SD11 | 地下工程与边坡稳定  Underground Engineering and Slope Stability | | 32 | 2 | 春  spring | |
| 2017SD03 | 工程渗流分析与控制  Seepage Analysis and Controlling Engineering | | 32 | 2 | 春  spring | |
| 2017SD12 | 水利工程施工新技术  New Construction Technology of Hydraulic Engineering | | 32 | 2 | 秋  fall | |
| 2017SD05 | 土石坝地震工程  Earth Rock Earthquake Engineering | | 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  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS06 | | \*综合素质课  Comprehensive Quality | 16 | 1 |  | |
| 2015JC25 | 程序设计方法  Methods of Programming | | 32 | 2 | 秋  fall | |
| 2015JC26 | 计算机辅助设计 Computer-Aided Design | | 32 | 2 | 春  spring | |
| 2015LXS07 | 英文科技写作  The Art of Scientific Presentation and Writing in English | | 32 | 2 | 秋、春  fall  or spring | |
| 教学环节  Academic Activities | | 学术活动  Seminar and Conferences | | | | | | 必修  [Required](app:ds:required)[Course](app:ds:course) | |
| 科学研究  Scientific Research | | | | | |
| 文献阅读与综述  Literature Reading and Reviewing | | | | | |

**Water Conservancy and Hydropower Engineering（081504）**

Discipline: Engineering (08)

First-Class Discipline: Water Conservancy (0815)

**1. Discipline Description**

The discipline of Water Conservancy and Hydropower Engineering at Hohai University was founded in 1952. This discipline was granted the right to award Master degree in 1984. In 1993, the right to award Ph. Doctor Degree was granted to this discipline and the post-doctor research workshop was established. In 1996, this discipline was awarded the key discipline of the Ministry of Water resources of the People’s Republic of China and granted as the National Level 2 Key Discipline in 2007. This discipline is also the key built discipline in the “Project 211”. The support platforms for scientific research mainly include the State Key Laboratory of Hydrology-water Resources and Hydraulic engineering, and the National Engineering Research Center of Water Resources Efficient Utilization and Engineering Safety. In this discipline, there are more than 10 supervisors for Ph. D., nearly 20 supervisors for Master Degree, and about 10 off campus part-time supervisors for Ph. D.

All the research works in this discipline mainly focus on the large hydropower stations, the pumping stations, the pumped-storage power stations, the tide hydropower stations and the wind power etc., aim to investigate and solve the key technology problems in these hydraulic projects including energy planning, design theories, operation control etc., and emphasize the innovative and original research at the premise of balanced development. All the achievement has given great contribution for the development of waterpower engineering and new energy in the world. This discipline actively promotes the projects Funded by the Priority Academic Program Development, and undertakes “973” projects, “863” projects, the projects from the National Natural Science Foundation of China and other research works, and has gained many innovative research achievements in basic theories and engineering application.

**2. Program Description**

The program aims to foster highly qualified specialists in the field of Water Conservancy and Hydropower Engineering with the consolidation of their basic theories, systematic professional knowledge and necessary engineering practice, and the development of their ability on scientific research and technological work. They should fully understand the frontier technology and development trend in this research field, read the English documents and papers frequently in this discipline and related fields, have a strong ability to write English documents and be active in the international academy communication. They are able to solve the technical problems and carry out their research work with the proficient application of the fundamental theories, advanced computational methods and experimental technology, and then be fully qualified for the work on higher education, scientific research, planning, design and management.

**3. Research Directions**

* + - * Water Resources & Hydropower System Planning and [Engineering Economy](http://dict.cnki.net/dict_result.aspx?searchword=%e5%b7%a5%e7%a8%8b%e7%bb%8f%e6%b5%8e&tjType=sentence&style=&t=engineering+economy)
      * Hydraulics of Hydropower Station, Pump Station and Pumped-Storage Power Station
      * Structure of Hydropower Station and Pump Station
      * Hydraulic Transient Control and Simulation of Hydraulic Unit
      * Technique of Pumped-Storage Project and Renewable Energy

**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 5 years.

**6. Credits and Courses**

A master student must take at least 28 credits of courses, including 19 credits of required course of the degree and 9 credits of Non-required course of the degree.

**水利水电工程全英文留学硕士研究生课程设置**

**Courses for Master Students of Water Conservancy and Hydropower 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  19学分  Required course of the degree  19 Credits | 公共课程  General Courses | 2015LXS01 | \*汉语Ⅰ  Chinese Language Ⅰ | | 32 | 2 | 秋  fall | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS02 | 汉语Ⅱ  Chinese Language Ⅱ | | 32 | 2 | 春  spring |
| 2015LXS03 | \*中国概况  Introduction to China | | 32 | 2 | 秋  fall |
| 学科基础课程  Discipline Basic Courses | 2015JC03 | 数值分析 Numerical Analysis | | 48 | 3 | 秋  fall | 选修  5学分  5 Credits  at least |
| 2015JC04 | 最优化方法 Optimization Methods | | 32 | 2 | 秋  fall |
| 2015JC01 | 数学物理方程 Partial Differential Equations | | 32 | 2 | 春  spring |
| 专业基础课程  Major [Basic](app:ds:specialized)[Courses](app:ds:courses) | 2015SD07 | 水利水电系统规划  Water and Hydropower System Planning | | 32 | 2 | 春  spring | 选修  6学分  6 Credits  at least |
| 2015SD08 | 多目标决策理论及方法  Theory of Multi-Objective Decision-making | | 32 | 2 | 春  spring |
| 2015SD09 | 水力发电工程  Hydroelectric Engineering | | 32 | 2 | 春  spring |
| 2015SD10 | 瞬变流(一)  Fluid Transients I | | 32 | 2 | 春  spring |
| 专业课程  Major Courses | 2015SD11 | 风力和潮汐发电技术  Wind Power and Tidal Power | | 32 | 2 | 秋  fall | 选修  2学分  2Credits  at least |
| 2015SD13 | 抽水蓄能技术  Pumped－Storage Technology | | 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  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS06 | | \*综合素质课Comprehensive Quality | 16 | 1 |  |
| 2015JC26 | 计算机辅助设计 Computer-Aided Design | | 32 | 2 | 春  spring |
| 2015JC25 | 程序设计方法 Methods of Programming | | 32 | 2 | 秋  fall |
| 2015LXS07 | 英文科技写作  The Art of Scientific Presentation and Writing in English | | 32 | 2 | 秋、春  fall  or spring |
| 教学环节  Academic Activities | | 学术活动  Seminar and Conferences | | | | | | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 科学研究  Scientific Research | | | | | |
| 文献阅读与综述  Literature Reading and Reviewing | | | | | |

**Harbor，Coastal and Offshore Engineering (081505)**

Discipline: Engineering（08）

First-Class Discipline：Water Engineering（0815）

**1. Discipline Description**

The Harbor, Coastal and Offshore Engineering discipline was founded in 1952 by Yan Kai who was academician of both Chinese Academy of Sciences and Chinese Academy of Engineering. In 1981, Coastal Engineering was granted as one of the first specialties leading to Doctor and Master degrees, and Offshore Engineering was approved as one of the first specialties leading to Master degree. In 1990, Harbor and Waterway Engineering became the very first Doctoral program among the homogeneous subjects in China. In 2007, the discipline was chosen as a national key discipline and one of the key construction disciplines by the 985 Innovative Platforms for Key Disciplines Project.

Based on the State Key Laboratory of Hydrology-Water Resources and Hydraulic Engineering and National Engineering Research Center of Water Resources Efficient Utilization and Engineering Safety, the Harbor, Coastal and Offshore Engineering discipline has more than ten leading talents, including distinguished professors of Recruitment Program of Global Young Experts, joint-appointed academicians, winners of New Century Excellent Talents Supporting Plan of Ministry of Education and awardees of Jiangsu Province 333 High-level Personnel Training Project. Aiming at “harbor and waterway characteristics, international first-level”, the discipline hosted 624 scientific projects of 239 million total funding, published more than 800 academic papers, more than 30 works and teaching materials, won 55 provincial or ministerial Science and Technology Prizes, and 1 National Science and Technology Prize during the 11th Five-Year Plan. The main employers of graduate students are design institutions, management agencies, research institutions and universities.

**2. Program Description**

The program in Harbor, Coastal and Offshore Engineering aims at cultivating high-level individuals with solid fundamental knowledge in the theory of harbor, coastal and offshore engineering, who are capable of handling complex technical problems in harbor, coastal and offshore engineering projects, can undertake research and development project in large engineering companies or teaching and research work in academic institutions.

**3. Research Directions**

The Master program in Harbor, Coastal and Offshore Engineering is mainly oriented (but not limited) to the following research areas:

* Hydrodynamics of estuarine, coastal and off-shore engineering
* Coastal storm disaster and its mitigation
* Sedimentation and dredging in harbor and navigation engineering
* Engineering structure and its inter-action with surrounding medium
* Economy, planning and management of waterway transportation engineering

**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. Education System and Duration**

The master program is 3 years; the duration is minimum 2 years and no more than 5 years.

**6. Credits and Courses**

A master student must take at least 28 credits of courses, including 18 credits of required course of the degree and 10 credits of Non-required course of the degree. A thesis of the research subject and an oral defense are also required. Module structure of the master program of Harbor, Coastal and Offshore Engineering is listed below.

**港口、海岸及近海工程全英文留学硕士研究生课程设置**

**Courses for Master Students of Harbor, Coastal and Offshore 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  18学分  Required course of the degree  18 Credits | 公共课程  General Courses | 2015LXS01 | \*汉语Ⅰ  Chinese Language Ⅰ | 32 | 2 | 秋  fall | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS02 | 汉语Ⅱ  Chinese Language Ⅱ | 32 | 2 | 春  spring |
| 2015LXS03 | \*中国概况  Introduction to China | 32 | 2 | 秋  fall |
| 学科基础课程  Discipline Basic Courses | 2015JC08 | 矩阵论  Matrix Theory | 32 | 2 | 秋  fall |
| 2015JC03 | 数值分析  Numerical Analysis | 48 | 3 | 秋  fall |
| 2015JC01 | 数学物理方程  Partial Differential Equations in Mathematics and Physics | 32 | 2 | 秋  fall |
| 专业基础课程  Major [Basic](app:ds:specialized)[Courses](app:ds:courses) | 2015GH05 | 河口海岸动力学  Estuarine and Coastal Dynamics | 48 | 3 | 春  spring | 选修  2学分  2Credits  at least |
| 2015GH06 | 泥沙运动力学  Sediment Processes | 32 | 2 | 春  spring |
| 2015JC09 | 弹性力学  Elastic Mechanics | 48 | 3 | 秋  fall |
| 专业课程  Major Courses | 2015GH07 | 港口工程  Port Engineering | 32 | 2 | 春  spring | 选修  2学分  2Credits  at least |
| 2015GH08 | 航道工程  Waterway Engineering | 32 | 2 | 春  spring |
| 2015GH09 | 海岸工程  Coastal Engineering | 32 | 2 | 春  spring |
| 非学位课程  10学分  Non-required course of the degree  10 Credits | | 2015LXS05 | \*跨学科选修  Interdisciplinary Elective | 32 | 2 |  | 必修  [Required](app:ds:required)[Course](app:ds:course) |
| 2015LXS06 | \*综合素质课  Comprehensive Quality | 18 | 1 |  |
| 2015GH10 | 河口海岸水动力泥沙软件应用  Software Application of Estuarine, Coastal Hydrodynamic and Sediment | 32 | 2 | 春  spring | 选修  7学分  7Credits  at least |
| 2015GH11 | 港航工程结构数值分析  Numerical Analysis of Port and Waterway Engineering Structures | 32 | 2 | 春  spring |
| 2015JC10 | 结构动力学  Structural Dynamics | 32 | 2 | 春  spring |
| 2015JC11 | 最优化方法  Method of Optimization | 48 | 3 | 春  spring |
| 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 | | | | |