

## 课程详述

### COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 <b>Course Title</b>	水利水电工程概论 <b>Introduction to Water Resources and Hydropower Engineering</b>
2.	授课院系 <b>Originating Department</b>	环境科学与工程学院 School of Environmental Science and Engineering
3.	课程编号 <b>Course Code</b>	ESE323
4.	课程学分 <b>Credit Value</b>	3
5.	课程类别 <b>Course Type</b>	专业选修课 Major Elective Courses
6.	授课学期 <b>Semester</b>	春季 Spring
7.	授课语言 <b>Teaching Language</b>	中英双语 English & Chinese
8.	授课教师、所属学系、联系方式（如属团队授课，请列明其他授课教师） <b>Instructor(s), Affiliation &amp; Contact</b> (For team teaching, please list all instructors)	史海匀，环境科学与工程学院，0755-88018870（办公室） Haiyun, Shi, School of Environmental Science and Engineering, 0755-88018870 (office)
9.	实验员/助教、所属学系、联系方式 <b>Tutor/TA(s), Contact</b>	待公布 To be announced
10.	选课人数限额(可不填) <b>Maximum Enrolment (Optional)</b>	

11. 授课方式 Delivery Method	讲授	习题/辅导/讨论	实验/实习	其它(请具体注明)	总学时
	Lectures	Tutorials	Lab/Practical	Other (Please specify)	Total
学时数 Credit Hours	40	6	2	0	48
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无 N/A				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	水文预报 Hydrological Forecast				
14. 其它要求修读本课程的学系 Cross-listing Dept.	无 N/A				

### 教学大纲及教学日历 SYLLABUS

#### 15. 教学目标 Course Objectives

本课程的教学目标是使学生：

- 1) 认识和了解水利水电基础知识
- 2) 熟悉和掌握常见水利水电工程的类型、构造、施工和管理相关技术等知识
- 3) 了解水利水电工程的发展历程和趋势及其对社会发展的重要作用

The course is designed to help students: 1) recognize and understand the fundamental knowledge of water resources and hydropower engineering; 2) obtain the knowledge of the types, structures and relevant technologies of water resources and hydropower engineering; 3) be acquainted with the develop histories and trends of water resources and hydropower engineering as well as the vital role in socioeconomic development.

#### 16. 预达学习成果 Learning Outcomes

通过本课程的学习，学生能够：1) 认识和了解水利水电基础知识，具体包括：水资源、水能资源及水循环的基本概念，水文学及水力学的基本研究方法等。2) 熟悉和掌握常见水利水电工程的类型、构造、施工和管理相关技术等知识，具体包括：不同类型水工建筑物的基本知识，水利水电工程的布置、施工和管理，治河、防洪与灌排工程等。3) 了解水利水电工程的发展历程和趋势及其对社会发展的重要作用，具体包括：我国及世界主要流域的水利水电工程的发展、性质与分布，水利水电工程与社会经济发展的关系等。同时，这门课程将为学生进一步学习水文预报等方面的课程打好必要的知识基础。

The above-mentioned course objectives are achieved. The students can: 1) recognize and understand the fundamental knowledge of water resources and hydropower engineering, including the basic concepts of water resources, hydropower resources and water cycle, and the basic research methods of hydrology and hydraulics; 2) obtain the knowledge of the types, structures and relevant technologies of water resources and hydropower engineering, including the basic knowledge of different hydraulic structures, the layout, construction and management of water resources and hydropower engineering, and river regulation, flood control, and irrigation engineering; 3) be acquainted with the histories and trends of water resources and hydropower engineering as well as the vital role in socioeconomic development, including the developments, features and distributions of water resources and hydropower engineering in major river basins around China and the world, and the quantified relationship of water resources and hydropower engineering with socioeconomic development. In addition, a solid basis for advanced courses such as Hydrological Forecast can be laid.

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）  
**Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)**

绪论（2学时）/ Introduction (2 class hours)

第一部分 水利水电基础知识（4学时）/ Part I: Fundamental knowledge of water resources and hydropower engineering (4 class hours in total)

第一讲、水文学及水力学（2学时）/ Lecture 1: Hydrology and hydraulics (2 class hours)

第二讲、水利水电规划（1学时）/ Lecture 2: Water resources and hydropower planning (1 class hour)

第三讲、工程地质（1学时）/ Lecture 3: Engineering geology (1 class hour)

第二部分 水利水电工程简介（18学时）/ Part II: Introduction of water resources and hydropower engineering (18 class hours in total)

第四讲、水利水电枢纽（2学时）/ Lecture 4: Water resources and hydropower projects (2 class hours)

第五讲、挡水建筑物（6学时）/ Lecture 5: Water retaining structures (6 class hours)

第六讲、泄水建筑物（4学时）/ Lecture 6: Water release structures (4 class hours)

第七讲、其他建筑物（2学时）/ Lecture 7: Other structures (2 class hours)

第八讲、水电站（2学时）/ Lecture 8: Hydropower stations (2 class hours)

第九讲、水利水电工程施工和管理（2学时）/ Lecture 9: Construction and management of water resources and hydropower engineering (2 class hours)

第三部分 治河、防洪与灌排工程（6学时）/ Part III: River regulation, flood control, and irrigation engineering (6 class hours in total)

第十讲、治河防洪工程（4学时）/ Lecture 10: River regulation and flood control engineering (4 class hours)

第十一讲、灌排工程（2学时）/ Lecture 11: Irrigation engineering (2 class hours)

第四部分 重要流域的水利水电工程（10学时）/ Part IV: Water resources and hydropower engineering in major river basins (10 class hours in total)

第十二讲、长江流域的水利水电工程（2学时）/ Lecture 12: Water resources and hydropower engineering in Yangtze River basin (2 class hours)

第十三讲、黄河流域的水利水电工程（2学时）/ Lecture 13: Water resources and hydropower engineering in Yellow River basin (2 class hours)

第十四讲、珠江流域的水利水电工程（2学时）/ Lecture 14: Water resources and hydropower engineering in Pearl River basin (2 class hours)

第十五讲、南水北调工程（2学时）/ Lecture 15: South-to-North water diversion project (2 class hours)

第十六讲、世界其他重要水利水电工程（2学时）/ Lecture 16: Major water resources and hydropower engineering

around the world (2 class hours)

另有 8 学时用于学生演讲、讨论和现场参观，总计 48 学时。

The remaining 8 class hours are used for student presentation, in-class discussion and field trip. The total number of class hours is 48.

**18. 教材及其它参考资料 Textbook and Supplementary Readings**

主要参考教材 / Major textbooks:

- 1) 《水利水电工程概论（第三版）》，田士豪，周伟 著，中国电力出版社，2010

Introduction to Water Resources and Hydropower Engineering (3rd Edition), Shihao Tian and Wei Zhou, China Electric Power Press, 2010

- 2) 《水利水电工程概论》，王长运，叶舟 著，黄河水利出版社，2009

Introduction to Water Resources and Hydropower Engineering, Changyun Wang and Zhou Ye, Yellow River Water Conservancy Press, 2009

- 3) Dams and Hydropower, Spilsbury, Louise A., Rosen Central, 2011

**课程评估 ASSESSMENT**

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance	The entire semester	10%		
课堂表现 Class Performance	The entire semester	10%		
小测验 Quiz		10%		
课程项目 Projects	After midterm	10%		
平时作业 Assignments	The entire semester	10%		
期中考试 Mid-Term Test				
期末考试 Final Exam	Final week	50%		
期末报告 Final Presentation				
其它（可根据需要 改写以上评估方式） Others (The above may be modified as necessary)				

**20. 记分方式 GRADING SYSTEM**

A. 十三级等级制 Letter Grading

B. 二级记分制（通过/不通过） Pass/Fail Grading

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过

This Course has been approved by the following person or committee of authority

