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 Course Title	**水文预报 Hydrological Forecast**
2.	授课院系 Originating Department	环境科学与工程学院 School of Environmental Science and Engineering
3.	课程编号 Course Code	ESE326
4.	课程学分 Credit Value	3
5.	课程类别 Course Type	专业选修课 Major Elective Courses
6.	授课学期 Semester	秋季 Fall
7.	授课语言 Teaching Language	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） Instructor(s), Affiliation& Contact （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 Tutor/TA(s), Contact	无 N/A
10.	选课人数限额(可不填) Maximum Enrolment （Optional）	

11. 授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other（Please specify）	总学时 Total
学时数 Credit Hours	42	6	0	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**	无 N/A
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）认识和理解水文预报的基本原理

2）熟悉和掌握常用的水文预报方法

3）了解水文预报的实际应用及其对社会发展的重要作用

This course is designed to achieve the following objectives: 1) let the students understand the basic principles of hydrological forecast; 2) let the students familiarize and master the commonly-used methods for hydrological forecast; 3) let the students know the practical applications of hydrological forecast and its 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）认识和理解水文预报的基本原理，具体包括：流域产流、流域汇流、河道流量演算等。2）熟悉和掌握常用的水文预报方法，具体包括：不同类型的流域水文模型等。3）了解水文预报的实际应用及其对社会发展的重要作用，具体包括：洪水预报、枯季径流与旱情分析预报、水库水文预报、冰雪融水径流与冰情预报、水文预报结果评定等。同时，这门课程将为学生进一步学习水文与水资源工程专业方向的其他课程打好必要的知识基础。

Through the study of this course, the students can: 1) understand the basic principles of hydrological forecast, including watershed runoff generation, watershed flow concentration, and river discharge calculation; 2) familiarize and master the commonly-used methods for hydrological forecast, including different types of hydrological models; 3) know the practical applications of hydrological forecast and its vital role in socioeconomic development, including flood forecast, runoff and drought forecast in the dry season, hydrological forecast for reservoirs, snowmelt runoff forecast, ice regime forecast, and evaluation of hydrological forecast results. In addition, a solid basis for further studying other courses in hydrology and water resources engineering 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 水文预报基本原理（8 学时）/ Part I: Basic principles of hydrological forecast (8 class hours in total)

第一讲、流域产流（4 学时）/ Lecture 1: Watershed runoff generation (4 class hours)

第二讲、流域汇流（2 学时）/ Lecture 2: Watershed flow concentration (2 class hours)

第三讲、河道流量演算（2 学时）/ Lecture 3: River discharge calculation (2 class hours)

第二部分 水文预报方法（18 学时）/ Part II: Methods for hydrological forecast (18 class hours in total)

第四讲、水文模型基础知识（4 学时）/ Lecture 4: Basic knowledge of hydrological models (4 class hours)

第五讲、概念性水文模型（6 学时）/ Lecture 5: Conceptual hydrological models (6 class hours)

第六讲、分布式水文模型（8 学时）/ Lecture 6: Distributed hydrological models (8 class hours)

第三部分 水文预报实际应用（14 学时）/ Part III: Practical applications of hydrological forecast (14 class hours in total)

第七讲、洪水预报（4 学时）/ Lecture 7: Flood forecast (4 class hours)

第八讲、枯季径流与旱情分析预报（4 学时）/ Lecture 8: Analysis and forecast of runoff and drought in the dry season (4 class hours)

第九讲、水库水文预报（2 学时）/ Lecture 9: Hydrological forecast for reservoirs (2 class hours)

第十讲、冰雪融水径流与冰情预报（2 学时）/ Lecture 10: Snowmelt runoff and ice regime forecast (2 class hours)

第十一讲、水文预报结果评定（2 学时）/ Lecture 11: Evaluation of hydrological forecast results (2 class hours)

另有 6 学时用于学生演讲、讨论和现场参观，总计 48 学时。

The remaining 6 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

教材 Textbooks：

1) 《水文预报（第 5 版）》，包为民 著，中国水利水电出版社，2017

Hydrological Forecast (5th Edition), Weimin Bao, China WaterPower Press, 2017

2) 《水文模型》，徐宗学 等 著，科学出版社，2009

Hydrological Models, Zongxue Xu, et al., Science Press, 2009

教参 Reference：

Handbook of Applied Hydrology (Second Edition), V.P. Singh, et al., McGraw-Hill, 2016

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	The entire semester	10%		

Assignments				
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