

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	海洋工程设计 I - 环境、经济与法律 Ocean Engineering Design I – Environment, Economy and Regulations
2.	授课院系 Originating Department	海洋科学与工程系 Department of Ocean Science and Engineering
3.	课程编号 Course Code	OCE213
4.	课程学分 Credit Value	3
5.	课程类别 Course Type	专业核心课 Major Core Courses
6.	授课学期 Semester	秋季 Fall
7.	授课语言 Teaching Language	英语 English
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)	陈建飞 海洋科学与工程系 工学院南楼 201, 0755-88015269 Prof. Jian Fei CHEN, Department of Ocean Sciences and Engineering College of Engineering 201, 0755-88015269
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	
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
	32		32		64
学时数 Credit Hours					
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements					
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite					
14. 其它要求修读本课程的学系 Cross-listing Dept.					

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

通过本课程的教学，学生将对海洋工程学科多个方面比较好的掌握，并把这些知识用于海洋工程项目的可行性研究。本课程采用新工科教学方式，以一海洋工程项目为背景，通过少量（1/3）的课堂教学与大量（2/3）的学生独立学习研究，团队合作，与教师及其它研究人员互动的方式解决切合实际的工程项目可行性研究，培养学生的自主学习能力和团队合作精神，为今后的就业乃至职业生涯奠定基础。

Through attending this course, students will develop good understanding of many aspects of ocean engineering, and applying these knowledge to conduct the feasibility study of an ocean engineering project. This course will be delivered through project based learning: a few lectures will be used to introduce relevant aspects of ocean engineering but most time will be spent on independent learning and team cooperation. The course would enhance students' self-learning capability and team player skills. The knowledge and skills achieved through attending this course would form part of the foundation of the students' future professional career.

16. 预达学习成果 Learning Outcomes

通过本课程的学习，学生将：

1. 初步了解海洋工程环境，结构，基础及风电，海洋法律法规及海洋工程经济性分析；
2. 利用上述知识进行海洋工程项目的可行性研究；
3. 提高自主学习的能力；
4. 提高团队合作精神；
5. 提高领导能力；
6. 提高交流能力。

By taking this course, students will

1. Achieve a basic understanding of ocean engineering environment, structures and foundations, wind and windpower generation; maritime laws and regulations, economical analysis of ocean engineering projects;
2. Be able to apply these knowledge to conduct feasibility study of ocean engineering projects;
3. Enhance independent leaning skills;
4. Enhance team working skills;
5. Enhance leadership
6. Enhance communication and dissemination skills.

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.)

本课程分为三部分 / this course includes the following three parts:

1. 课程绪论/Introduction: 2 学时 / 2 hours
 2. 课堂教学/Lectures: 16 学时 / 16 hours
 3. 设计与学生展示 / design and student presentations: 62 学时 / 62 hours
- 总计/ Total: 80 学时 / 80 hours

Part 1 课程绪论（2 学时）
Introduction of the course (2 hours)

海洋资源开发，海洋工程发展史，我国海洋工程发展现状及展望，课程介绍
Ocean resources, history of ocean engineering, the current status and perspectives of Ocean Engineering in China, introduction of the course.

Part 2 课堂教学 (30 学时)
Lectures (30 hours)

题目 1 海洋工程环境（4 学时）

Topic 1 Ocean engineering environment (4 hours)

海洋气象条件，海洋水文条件，海洋地质灾害及其工程危害性

Ocean meteorological conditions, ocean hydrological conditions, ocean geological hazards and their engineering implications

题目 2 风与风电（4 学时）

Topic 2 Wind and windpower (4 hours)

介绍风与风电的关系

Introducing the relationship between wind and wind turbine generated electricity.

题目 3 海洋法律（4 学时）

Topic 3 Maritime laws and regulations (4 hours)

介绍海洋法律法规

Introduction of maritime laws and regulations

题目 4 海洋工程结构简介（6 学时）

Topic 4 Introduction to ocean engineering structures (6 hours)

介绍海洋工程结构的类型及初选尺寸

Introducing types of ocean engineering structures and sizing

题目 5 海洋工程结构基础（6 学时）

Topic 5 Foundations of ocean engineering structures (6 hours)

介绍海洋工程结构的基础类型

Introducing types of foundations for ocean engineering structures

题目 6 海洋工程经济（6 学时）

Topic 6 Ocean engineering economy (6 hours)

介绍海洋工程项目的全寿命经济分析

Introduction of life cycle economy of ocean engineering projects

Part 3 设计与展示（32 学时）
Design and student presentations (32 hours)

学生将分组完成以指定工程项目的可行性研究/设计，在课程中以各种形式不断展示个人及团队的研究进展、参与课堂讨论，最终完成可行性研究报告。

Students will form small groups to conduct the feasibility study of a given project. They will participate in-class discussions and debate, progressively present in various forms their individual and group progress, and final complete a feasibility study report. (32 hours).

迷你项目 Mini project	名称 Topic	内容 Content	学时 Hours
1	工程选址 Site selection	根据设计任务, 选定 2 个海域, 考虑以下因素: 海洋气象条件, 海洋水文条件, 海洋地质灾害及其工程危害性 Select two sites based on the design brief, considering the following factors: Ocean meteorological conditions, ocean hydrological conditions, ocean geological hazards and their engineering implications	8
2	海洋法律 Maritime laws and regulations	根据相应海洋法律法规, 提出以上 2 个选址的法律建议 Provide legal advice for the two selected sites according to relevant laws and regulations	8
3	结构基础概念设计 Conceptual design of structure and foundation	提出本工程结构的类型及初选尺寸 Propose structural type and sizing. 提出本工程基础类型 Propose types of foundations for this project	8
4	工程估算与经济分析 Cost estimation	进行本项目的全寿命经济分析 Conduct the life cycle cost analysis for the project in this course	8

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

教材:

1. 龚晓南. 《海洋土木工程概论》, 中国建筑工业出版社.

参考资料:

1. Karimirad, Madjid. Offshore energy structures: for wind power, wave energy and hybrid marine platforms. Springer, 2014.

2. Matori, Abd Nasir B., et al. eds. Structural, Environmental, Coastal and Offshore Engineering. Trans Tech Publications Ltd, 2014.

3. 孙丽萍, 聂武. 《海洋工程概论》, 哈尔滨工程大学出版社.

4. 李治彬. 《海洋工程结构》, 哈尔滨工程大学出版社.

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		10		
课堂表现 Class Performance		10		
小测验 Quiz				
课程项目 Projects		50		
平时作业				

Assignments				
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告 Final Presentation		30		
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

海洋科学与工程系本科教学委员会
 Department of Ocean Science and Engineering Undergraduate Committee

