

## 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.	<b>课程名称 Course Title</b>	海洋工程设计 IV: 资源开发与设备 Ocean Engineering Design IV: Resource Exploitation and Equipment
2.	<b>授课院系 Originating Department</b>	海洋科学与工程系 Department of Ocean Science and Engineering
3.	<b>课程编号 Course Code</b>	OCE326
4.	<b>课程学分 Credit Value</b>	3
5.	<b>课程类别 Course Type</b>	专业选修课 Major Elective Courses
6.	<b>授课学期 Semester</b>	春季 Spring
7.	<b>授课语言 Teaching Language</b>	中英双语 English & Chinese
8.	<b>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 &amp; Contact (For team teaching, please list all instructors)</b>	冯伟强 海洋科学与工程系 13715146273 Feng Weiqiang, Department of Ocean Sciences and Engineering, 13715146273
9.	<b>实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact</b>	待公布 To be announced
10.	<b>选课人数限额(可不填) Maximum Enrolment (Optional)</b>	

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	48				48
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，对海洋工程领域不同种类的资源开发和相关设备类型进行较为系统的介绍，从而让学生对海洋工程资源开发的种类、资源开发相关设备的基本工作原理及其设计施工方法、适用范围有所了解，为今后从事海洋领域的工作奠定良好的专业基础、储备基本的专业技能。

Through this course, the basis of different kinds of resource exploitation type will be introduced systematically, so that the students will learn the concepts, basic principles, and design and construction methodologies, as well as applicability of various equipment and system for resource exploitation. It will equip them with fundamental professional knowledges and skills for their future work in the marine engineering industry.

#### 16. 预达学习成果 Learning Outcomes

通过本课程的学习，学生将认识及了解海洋工程领域不同种类的资源开发手段、资源开发设备的工作原理及适用范围，从而培养学生对海洋工程资源开发、近海和深海资源开发的分析和设计能力，具体包括：

- (1) 将数学、科学和工程知识应用于不同种类的海洋资源开发过程中；
- (2) 能够分析设计多种海洋资源开发，了解不同种类资源开发设备的原理与施工方法；
- (3) 将本课程中涉及的技术、知识和现代工程手段应用到海洋资源开发的工程实践中；
- (4) 认识到国家资源开发的需求，从而发挥主观能动性、积极思考如何对现有技术进行改进从而推动资源开发技术的不断发展与创新。

By taking this course, students will learn about the concept, principle and applicability of various types and systems of ocean resources exploitation. It will equip students on the analysis and knowledge of resources exploitation, equipments for offshore engineering works:

- (1) Apply knowledge of mathematics, science and engineering to ocean resources exploitation;
- (2) Able to analyze and design of resources exploitation and have knowledge of its construction methods;
- (3) Apply the techniques, skills and modern engineering tools covered in the module to engineering practice of ocean resources exploitation;
- (4) Recognize the needs for China development, and have the ability to engage in lifelong learning in view of advancing offshore resource exploitation technologies.

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.)**

**Section 1 课程绪论（3 学时）**

Introduction of the Course (3 credit hours)

**Section 2 管线工程规范与标准（6 学时）**

Piping Codes, Standards, and Specifications (6 credit hours)

**Section 3 管线油气开发系统成分（6 学时）**

Piping Components (6 credit hours)

**Section 4 油气管线系统材料（6 学时）**

Metallic Materials for Piping Components (6 credit hours)

**Section 5 组成成分及功能（6 学时）**

Roles and Responsibilities (6 credit hours)

**Section 6 油气管线系统制造、装配和安装（3 学时）**

Fabrication, Assembly, and Erection. (3 credit hours)

**Section 7 管线系统检测（6 学时）**

Inspection and Testing (6 credit hours)

**Section 8 油气系统设备种类及功能（3 学时）**

Piping equipment types and roles (3 credit hours)

**Section 9 适用性及疲劳（3 学时）**

Flexibility and Fatigue (3 credit hours)

**Section 10 典型工程案例（6 学时）**

Typical projects (6 credit hours)

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

教材:

1. Smith, Peter. The fundamentals of piping design. Elsevier, 2013.

参考资料:

1. Smith, Peter, and Rutger Botermans. Advanced Piping Design. Elsevier, 2013.

2. Menon, E. Shashi. Gas pipeline hydraulics. Crc Press, 2005.
3. Antaki, G. A. (2003). Piping and pipeline engineering: design, construction, maintenance, integrity, and repair. CRC Press.

### 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				
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		30		
期中考试 Mid-Term Test				
期末考试 Final Exam		60		
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

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