海洋工程与技术专业培养方案

一、专业简介

本专业培养具备海洋工程与技术知识和技能，具有较强的科学素养、爱国敬业精神和比较广泛的适应能力，能够在科研、教学、产业和管理部门胜任工作，特别是在与海洋油气与矿产资源开发密切相关的海洋资源勘探技术与装备、海洋资源开发工程以及海洋环境保护等领域开展工程建设和装备研发的高级专门人才。

二、培养目标

本专业致力于培养具有工程科学基础、工程专业技术及管理等知识，具有分析问题、解决问题、组织管理、合作交流和自主学习的能力，具有创新意识、社会责任感、职业道德及人文素养，能在海洋油气与矿产资源勘探开发及其相关领域从事工程设计、技术开发、生产运行与技术管理和科学研究等工作，能解决复杂海洋工程与技术问题的工程技术人才，期待毕业生达到以下目标：

（1）具备良好的人文社会科学素养、职业道德及社会责任感，能够正确理解和评价复杂海洋工程问题解决方案和海洋工程实践对社会、安全、法律、文化及环境与可持续发展的影响，具备建设可持续发展社会的责任感。

（2）能有效应用海洋工程与技术学科领域的工程与技术科学基础、工程专业技术及管理等知识，解决复杂工程技术问题；具备较丰富的工程经验，深刻了解所属工程部门的特点、管理体系和质量标准，能提出专业独立技术见解，能承担海洋油气与矿产的勘探开发面临的复杂问题研究、系统设计与开发、工程管理工作；

（3）具备管理工作团队及协调项目的活动能力，能正确认识项目团队中的角色定位，能够组织制定工作计划并有效实施；

（4）能应对科技发展挑战，掌握新兴技术，实施技术创新，具备可持续发展理念和国际化视野。

三、毕业要求

（1）工程知识：能够将数学、自然科学、工程基础和海洋工程与技术专业知识用于解决本专业的复杂工程问题。掌握数学、自然科学、工程与技术科学等方面的基础理论和知识，用于海洋工程与技术问题的表述；能针对工程项目的具体研究对象建立数学模型并求解，应用专业知识采集并处理工程数据，将相关知识和数学模型方法用于推演、分析海洋工程与技术专业复杂工程问题；能够提出解决海洋工程与技术专业复杂工程问题的可行方案，并进行比较与综合。

（2）问题分析：能够应用数学、自然科学和工程科学的基本原理，识别、表达、并通过文献研究分析海洋领域的复杂工程与技术问题，以获得有效结论。能够将数学、自然科学、工程科学的原理和逻辑思维，识别和判断海洋领域的复杂工程与技术问题的关键环节，并给予相关科学原理和数学模型正确表达；能够通过信息检索、文献研究分析和相关科学、工程原理，认识到海洋工程与技术专业复杂工程问题具有多种解决方案，并能够寻求解决问题的有效途径和可替代的解决方案；借助数学、自然科学、工程科学知识和文献资料，能够研究分析海洋领域复杂工程方案中的影响因素、关键环节和方案可行性，并进行多方案的技术经济对比分析和获得有效结论。

（3）设计/开发解决方案：能够设计针对海洋领域的复杂工程与技术问题的解决方案，设计满足特定需求的体系、构件、设备或加工方案，绘制图纸及编撰技术文档，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。面向解决海洋领域的复杂工程问题需求，能够掌握工程环境的调查方法、设计方法和加工技术，了解影响设计目标和技术方案的各种因素；能够针对海洋工程实践的特定需求，完成构件及系统设计方案、设备加工方案等关键环节的设计，正确绘制设备图纸并撰写设计文档，能够在设计环节考虑新工艺、新技术和新理论，体现创新意识；能够针对不同的海洋工程实践需求在设计方案中考虑社会、安全、健康、法律、文化以及环境等因素，制定出满足国家及社会经济建设需求的合理方案。

（4）技术研究：能够基于科学原理并采用科学方法对海洋领域的复杂工程与技术问题

进行研究，包括设计实验、分析与解释数据，并通过信息综合得到合理有效的结论。能够运用科学原理，通过文献研究或相关方法，调研、分析海洋领域复杂工程与技术问题的关键技术和解决方案；基于海洋工程与技术专业理论、针对海洋领域的复杂工程问题选择合理的研究方法和技术路线，并设计科学的实验方案，进行创新性实验，包括实验组织、数据获取、数据处理；能够对实验数据进行分析与解释，并通过信息综合得到合理有效的结论。

（5）现代工具应用：能够针对海洋领域复杂工程问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具，包括对复杂工程问题的预测与模拟，并能够理解其局限性。掌握现代海洋工程的仪器、设备和先进信息处理技术工具，能够针对调研、设计和加工等方面的复杂工程问题，选择并使用恰当的技术和工具，理解其局限性，能对海洋领域的专业复杂工程问题进行分析、计算和设计；针对调研、设计和加工等方面的方案优化设计，能够选择、使用专业软硬件工具，开发满足特定需求的专门工具，用于工程方案的优化、预测和模拟，并理解其局限性。

（6）工程与社会：能够基于海洋工程与技术相关背景知识进行合理分析，评价海洋领域专业工程实践和复杂工程问题解决方案对社会、健康、安全、法律以及文化的影响，并理解应承担的责任。理解海洋工程的社会作用及海洋资源勘探开发活动对社会、健康、安全、法律及文化的影响；在海洋工程实践中具备综合考虑多种制约因素的意识，能够合理地分析、评价和解决海洋资源勘探开发活动对社会、健康、安全、法律以及文化等方面可能产生的风险，对所设计的工程装备质量负责，并理解应承担的责任。

（7）环境和可持续发展：能够理解和评价针对海洋资源勘探开发活动对环境、社会可持续发展的影响。理解和评价海洋资源勘探开发活动对环境保护、社会可持续发展的影响；了解海洋资源勘探开发与环境保护和可持续发展等方面相关的方针政策、法律法规，理解和评价海洋资源勘探开发对环境、社会可持续发展造成的损害和隐患，并制定合理策略降低对人类和环境造成的损害和隐患。

（8）职业规范：具有人文社会科学素养、社会责任感，能够在工程实践中理解并遵守工程职业道德和规范，履行责任。了解中国国情，具有爱国主义情怀和人文社会科学素养，理解个人与社会的关系，树立正确的世界观、人生观、价值观；具备法律意识和社会责任感，理解海洋工程与技术从业人员的职业性质，掌握相关的规范和法规，自觉遵守职业道德和法律法规；理解海洋工程专业人员对公共安全、健康、福祉、环境保护的社会责任，理解工程实践对维护国家安全、社会稳定的重要性，能够在工程实践中自觉履行社会责任。

（9）个人和团队：能够在解决海洋领域的复杂工程问题时，在多学科背景下的团队中承担个体、团队成员以及负责人的角色。具备良好的组织协调能力、表达能力和人际交往能力，能够与其他学科的成员有效沟通与合作；能够独立承担海洋工程的专项任务，能够在多学科组成的团队中承担个体、团队成员或负责人的角色。

（10）沟通：能够就海洋领域的复杂工程问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。并具备一定的国际视野，能够在跨文化背景下进行沟通和交流。能够运用海洋工程与技术领域的知识，针对海洋领域的复杂工程问题与业界同行及社会公众进行有效沟通、交流和回应质疑，掌握标准工程图纸、设计说明书和研究报告的绘制撰写方法和陈述发言技巧；了解海洋工程与技术学科的国际发展趋势、研究热点，理解和尊重世界不同文化的差异性和多样性，具备一定的国际视野；熟练使用一门外语，具备外文资料检索、外语沟通与表达能力，能够就海洋环境调查、装备设计和加工问题在跨文化的背景下进行沟通和交流。

（11）项目管理：理解并掌握海洋油气与矿产资源勘探开发相关的工程管理原理与经济决策方法，并能在多学科环境中应用。掌握海洋环境调查、装备设计、加工的管理与经济决策的基本原理和方法；能够在多学科环境下，综合应用技术、管理和经济等决策方法，设计海洋工程与技术项目的实施方案，并组织和领导多学科团队进行项目的实施。

（12）终身学习：具有自主学习和终身学习的意识，有不断学习和适应发展的能力。能够正确认识自我探索和学习的必要性，并能显现自我探索和学习成效；具有自主学习的能力，不断学习、适应海洋工程与技术发展，具备对不断变化的技术问题的理解、归纳总结和提出问题等能力。

四、学制与学位

学制四年。学生修满规定的最低学分，达到毕业要求后，授予工学学士学位。

五、核心课程

本专业以海洋工程与技术方向为主，核心课程包括：海洋资源学、传感器原理、海洋工程环境学、海洋调查技术、工程材料 B、海洋信息学、海洋地球物理探测技术应用、海洋装备设计方法、海洋工程设计方法、地球物理地质综合解释与应用、深海矿产资源开发技术等。

同时，本专业着重加强实践和创新教学。其中实践教学包括：军事技能训练、思想政治社会实践、实验物理、学院专业综合性实验课（工程力学实验技术、结构力学实验技术等）、海洋工程装备与调查技术综合实习（3 周）、海洋工程综合设计（3 周）、海洋装备综合设计（3 周）、金工实习（3 周）、专业生产实习（4 周）和毕业论文/设计（12 周）。创新创业实践包括：社会实践、科研训练、创新创业活动等。

Undergraduate Programme in Marine Engineering and Technology

1. Major Introduction

This program aims at cultivating composite academic talents well trained in marine engineering and technology, with a solid background in marine sciences, with strong sense of patriotism and social responsibility, as well as improving adaptability for further career development. The students should obtain the abilities to work in the institutes related in researching/teaching or managing in related. Especially, the students are trained for exploration and development of offshore oil & gas and marine mineral resources, such as conduct the engineering construction or equipment development related to mineral resource exploration and development, as well as mineral environment protection.

2. Academic Objectives

This major is dedicated to cultivating engineers and technicians to obtain the knowledge of engineering science, engineering expertise, and management. They will be trained to analyze problems, solve problems, management, communication, and self-motivated learning. In addition, they have a sense of innovation, social responsibility, professional ethics, and humanities. They can be engaged in production operation and technical management, engineering design, technology development, and scientific research in Marine Engineering and Technology or related fields. Complex Marine Engineering and Technology problems can be solved by them. The students are expected to achieve the following goals after graduation:

(1) Possess good humanities and social science literacy, professional ethics, and a sense of social responsibility. Can correctly understand and evaluate the impact of complex marine engineering and technology problem solutions and marine engineering practices on society, safety, law, culture, environment, and sustainable development. Have a sense of social responsibility for sustainable development.

(2) Be able to effectively apply knowledge of engineering science foundation, engineering expertise and management in marine engineering and technology to solve complex engineering problems; have abundant engineering experience, have an advanced understanding of the characteristics of the engineering department, management system and quality standards, and be able to propose professional independent technologies insights, be able to study complex problems of marine engineering and technology, marine equipment design and development, and project management.

(3) Have the ability to manage work teams and coordinate project activities, be able to understand the role positioning in the project team correctly, be able to organize and formulate work plans and implement them effectively.

(4) Be able to deal with the challenges of technological development, master emerging technologies, implement technological innovation, and possess the concept of sustainable development and a global vision.

3. Graduation Requirements

(1) Engineering knowledge: Students are required to apply mathematics, natural sciences, engineering fundamentals and marine engineering and technology expertise to solve complex marine engineering and technology problems. Students are required to acquire basic theory and knowledge of mathematics, natural science and engineering science for the formulation of marine engineering and technology problems. Students are required to establish mathematical models and solve them for specific research objects of engineering projects, apply professional knowledge to collect and process engineering data, and apply relevant knowledge and mathematical modelling methods to derive and analyse complex marine engineering and technology problems. Students are required to propose feasible solutions to complex marine engineering and technology problems, and compare and synthesise them.

(2) Problem Analysis: Students are required to apply basic principles of mathematics, natural and engineering sciences to identify, express, and analyse complex engineering problems in marine engineering and technology through literature research. Students are required to apply principles and logical thinking from mathematics, natural science and engineering science to identify and judge key aspects of complex marine engineering and technology problems, and give correct expression to relevant scientific principles and mathematical models. Students are required

to recognise that complex marine engineering and technology problems have multiple solutions through information retrieval, literature research and analysis and relevant scientific and engineering principles, and seek effective ways to solve problems and alternative solutions. Students are required to research and analyse the influencing factors, key aspects and feasibility of solutions in complex marine engineering solutions with the knowledge and literature of mathematical, natural and engineering science, and conduct comparative technical and economic analysis of multiple solutions and obtain valid conclusions.

(3) Design/develop solutions: Students are required to design solutions to complex marine engineering and technology problems, design systems, structures, components (nodes) or construction solutions to meet specific needs, produce drawings and compile technical documentation, and be able to demonstrate a sense of innovation in the design process, considering social, health, safety, legal, cultural and environmental factors. Students are required to master the survey methods, design methods and construction techniques of engineering practice, and understand the factors that influence design objectives and technical solutions, to meet the needs of solving complex marine engineering and technology problems. Students are required to complete the design of key aspects such as component and system design solutions and construction technology solutions for the specific needs of marine engineering practice, correctly draw construction drawings and write design documentation, and are able to consider new processes, materials and technologies in the design process, reflecting a sense of innovation. Students are required to consider social, safety, health, legal, cultural and environmental factors in their design solutions to meet the needs of different marine engineering practices, and develop reasonable solutions that meet the needs of the state and social and economic construction.

(4) Technology Research: Students are required to study complex marine engineering and technology problems based on scientific principles and using scientific methods, including designing experiments, analyzing and interpreting data, synthesizing information to obtain reasonable and effective conclusions, and applying them to engineering practice. Students are required to apply scientific principles to research and analyse key technologies and solutions to complex marine engineering and technology problems through literature research or related methods. Students can choose a reasonable research route and design an experimental programme based on marine engineering and technology professional theories and for complex marine engineering and technology problems, and conduct innovative experiments, including experimental organisation, data acquisition and data processing. Students are required to analyse and interpret experimental data and obtain reasonable and valid conclusions through information synthesis.

(5) Use modern tools: Students are required to develop, select and use appropriate techniques, resources, modern engineering tools and information technology tools for complex marine engineering and technology problems, including prediction and simulation of complex engineering problems, and are able to understand their limitations. Students are required to master modern marine engineering and technology instruments, equipment, and advanced information processing technology tools to select and use appropriate techniques and tools for complex engineering problems in surveying, design, and construction, and can analyse, calculate, and design complex marine engineering and technology problems and understand their limitations. Students are required to select and use specialist hardware and software tools to develop specialised tools to meet specific needs for the optimisation, prediction, and simulation of engineering solutions for the optimal design of solutions in survey, design and construction and understand their limitations.

(6) Engineering and Society: Students are required to undertake sound analysis based on relevant background knowledge of marine engineering and technology and evaluate the social, health, safety, legal and cultural implications of professional engineering practice and solutions to complex marine engineering and technology problems, and understand the responsibilities involved. Students are required to understand the social role of marine engineering and technology and the social, health, safety, legal and cultural impacts of marine engineering and technology activities. Students are required to have an awareness of the multiple constraints in marine engineering and technology practice, be able to reasonably analyse, evaluate and address the social, health, safety, legal and cultural risks that may arise from marine engineering and technology activities, and be responsible for the quality of the work carried out and understand their responsibilities.

(7) Environment and Sustainable Development: Students are required to understand and evaluate the environmental, socially sustainable impacts of engineering practices that address complex marine engineering and technology problems. Students are required to understand and evaluate the impact of marine engineering and technology practice on environmental protection and sustainable development of society, and recognise the status and role of engineering practice in environmental protection and sustainable development. Students are required to understand the policies, laws and regulations related to marine engineering and technology practice and environmental protection and sustainable development, etc, understand and evaluate the damage and potential hazards caused by engineering practice to the environment and sustainable development of society, and develop reasonable strategies to reduce the damage and potential hazards caused to humans and the environment.

(8) Professional norms: Students will have humanities and social science literacy, social responsibility, and the ability to understand and comply with engineering professional ethics and norms in the practice of engineering and fulfill their responsibilities. Students are required to understand China's national conditions, have patriotism and humanities and social science literacy, understand the relationship between the individual and society, and establish a correct world view, outlook on life and values. Students are required to possess a sense of legal awareness and social responsibility, and understand the professional nature of marine engineers, and master the relevant codes and regulations of the marine engineering and technology industry, and consciously abide by professional ethics and laws and regulations in engineering practice. Students are required to understand the social responsibility of marine engineers for public safety, health, well-being, environmental protection, and understand the importance of engineering practice in maintaining national security and social stability, and be able to consciously fulfill their social responsibility in engineering practice.

(9) Individual and team: Students are required to assume the role of individual, team member and leader in a multidisciplinary context when solving complex marine engineering and technology problems. Students are required to good organizational and coordination skills, presentation and interpersonal skills, and the ability to communicate and cooperate effectively with members of other disciplines. Students are required the ability to independently undertake special tasks in marine engineering and technology and to assume the role of individual, team member or leader in a multidisciplinary team.

(10) Communication: Students will have the ability to communicate and interact effectively with industry peers and the public on complex marine engineering and technology issues, including writing reports and designing submissions, presenting statements, and articulating or responding to instructions clearly. Students should have the international perspective and are able to communicate and interact in a cross-cultural context. Students are required to be able to apply knowledge of marine engineering and technology and related fields, to communicate effectively with industry peers and the public on complex engineering problems in marine engineering and technology, to communicate and respond to questions, and master the methods of drawing and writing standard engineering drawings, design specifications, research reports and presentation skills. Students are required to understand the international development trends and research hotspots of marine engineering and technology disciplines, understand and respect the differences and diversity of different cultures in the world, and have a certain international perspective. Students are required to be proficient in a foreign language, and can retrieve foreign language materials, communicate, and express themselves in a foreign language, and communicate and exchange ideas on marine engineering and technology investigation, design and construction issues in a cross-cultural context.

(11) Project Management: Students are required to understand and master the principles of engineering management and economic decision-making methods relevant to the marine engineering and technology profession, and to apply them in a multidisciplinary environment. Students are required to master the basic principles and methods of marine engineering and technology survey, design, construction management and economic decision making. Students are required to apply a combination of technical, managerial, and economic decision-making methods in a multidisciplinary environment to design the implementation of marine engineering and technology projects and o organize and lead multidisciplinary teams in the implementation of the projects.

(12) Lifelong learning: Students will have the sense of self-directed and lifelong learning, and

the ability to continuously learn and adapt to development. Students are required to have a sound understanding of the need for self-exploration and learning, and be able to demonstrate the effectiveness of self-exploration and learning. Students are required to have the ability to learn on their own, to continuously learn and adapt to marine engineering and technology developments, and to have the ability to understand, summarize, and ask questions about changing technical issues.

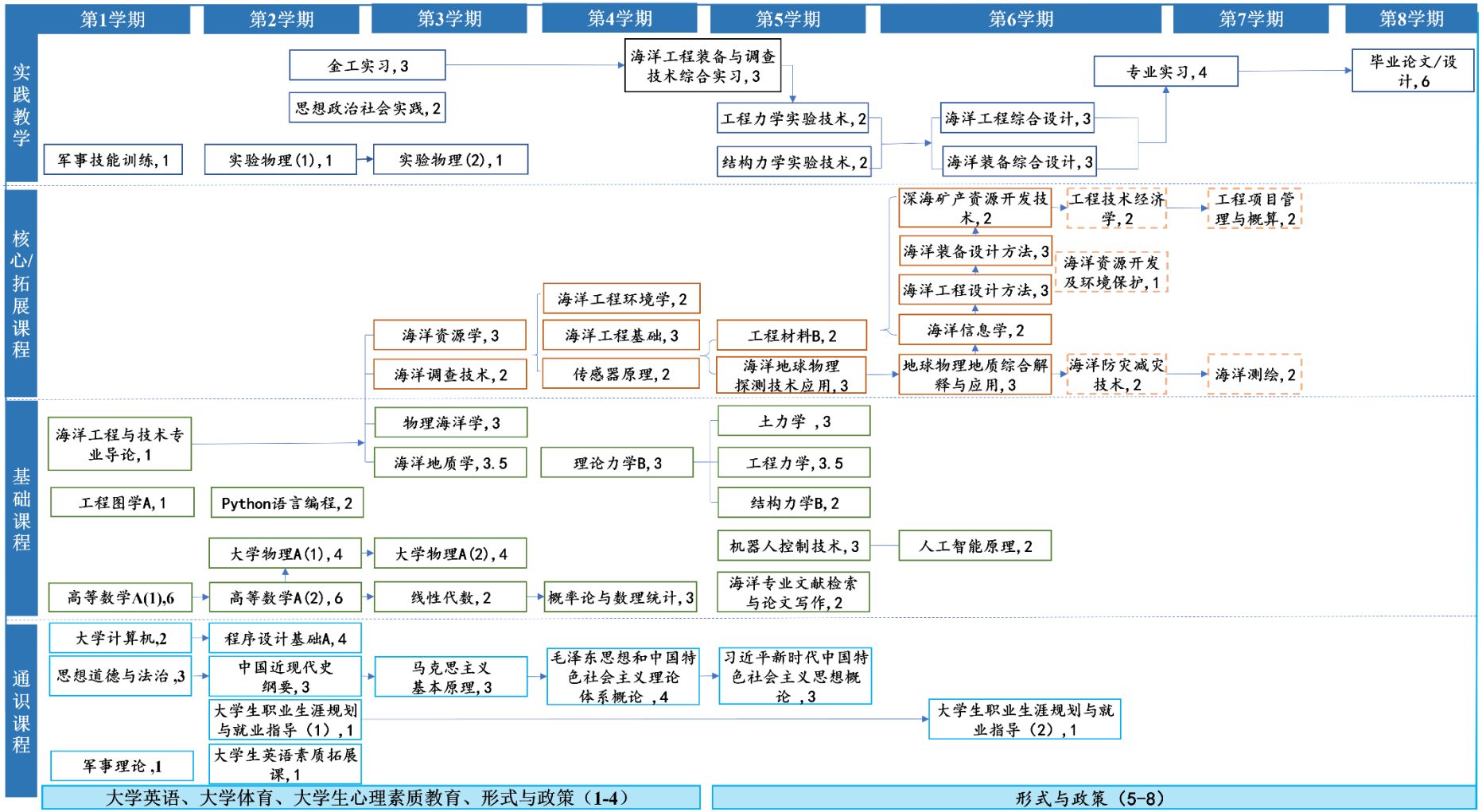
4. Length of Schooling and Degree

The length of schooling is four years of full-time study. Students will be awarded the Bachelor Degree of Engineering after they reach the required minimum credits and all other requirements.

5. Main Courses

The main courses of this major include: Ocean Resources, Principle of Transducers, Ocean Engineering Environment, Marine Surveying Technology, Fundamentals of Marine Engineering, Engineering Materials B, Marine Informatics, Marine Geophysical Techniques and Their Applications, Design Technology for Marine Equipment, Design Technology for Ocean Engineering, Seismic-geologic Integrated Interpretation and Application, Technology for Deep Sea Mineral Exploration.

Practice courses are: Military Theory and Training, Political Social Practice, Experimental Physics, Metalworking Practice (3 weeks), Integrative Practical of Ocean Engineering Equipment and Investigation Technology (3 weeks), Experimental Technology of Engineering Mechanics (48 hours), Experimental Technology of Structural Mechanics (48 hours), Ocean Engineering Design (3 weeks), Ocean Equipment Design (3 weeks), Professional Practice (4 weeks), Graduation Thesis/Design (12 weeks).


第1学期
第2学期
第3学期
第4学期
第5学期
第6学期
第7学期
第8学期
实践教学
核心/拓展课程
基础课程
通识课程
金工实习,3
海洋工程装备与调查技术综合实习,3
专业实习,4
毕业论文/设计,6
思想政治社会实践,2
工程力学实验技术,2
海洋工程综合设计,3
军事技能训练,1
实验物理(1),1
实验物理(2),1
结构力学实验技术,2
海洋装备综合设计,3
深海矿产资源开发技术,2
工程技术经济学,2
工程项目管理与概算,2
海洋装备设计方法,3
海洋资源开发及环境保护,1
海洋工程设计方法,3
海洋工程环境学,2
海洋资源学,3
海洋工程基础,3
工程材料B,2
海洋信息学,2
海洋调查技术,2
传感器原理,2
海洋地球物理探测技术应用,3
地球物理地质综合解释与应用,3
海洋防灾减灾技术,2
海洋测绘,2
海洋工程与技术专业导论,1
物理海洋学,3
土力学 ,3
海洋地质学,3.5
理论力学B,3
工程力学,3.5
工程图学A,1
Python语言编程,2
结构力学B,2
大学物理A(1),4
大学物理A(2),4
机器人控制技术,3
人工智能原理,2
高等数学A(1),6
高等数学A(2),6
线性代数,2
概率论与数理统计,3
海洋专业文献检索与论文写作,2
大学计算机,2
程序设计基础A,4
思想道德与法治,3
中国近现代史纲要,3
马克思主义基本原理,3
毛泽东思想和中国特色社会主义理论体系概论 ,4
习近平新时代中国特色社会主义思想概论 ,3
大学生职业生涯规划与就业指导（1）,1
大学生职业生涯规划与就业指导（2）,1
军事理论,1
大学生英语素质拓展课,1
大学英语、大学体育、大学生心理素质教育、形式与政策（1-4）
形式与政策（5-8）

六、最低毕业总学分要求及学分分配（Minimum Required Credits and Distribution）

课程模块 Course module	课程类别 Course Classification	学时数 Hours	学分 Credits	学 期 Semester										
				1	2	1 夏	3	4	2 夏	5	6	3 夏	7	8
通识教育 Liberal Education	通识教育必修课程 Required Courses of General Education	746	41	12.25	13.25		4.25	5.25		4.25	1.25		0.25	0.25
	通识教育选修课程 Selective Courses of General Education	192	12											
专业教育 Professional Education	学科基础课程 Disciplinary Fundamental Courses	904	56.5	10.5	12		12.5	6		13.5	2			
	专业核心课程 Specialized Fundamental Courses	464	29				5	7		5	12			
	专业拓展课程 Specialized Fundamental Courses	112	7								5		4	
实践教育 Practical Education	课程实践 Course Practice	30 周 +128 学时	29	1	1	5	1		3	2	6	4		6
	课外实践 Extracurricular Practice	96	6											
必修课总学分 Required Course Credits				162.5										
选修课总学分 Elective Course Credits				18										
最低毕业总学分 Total Credits				180.5										

七、课程设置（Curriculum）

1、通识教育必修课程（Required Courses of General Education）：746 学时(746 Hours)，41 学分(41 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR181009	思想道德与法治 Ideological Morality and Rule of Law	48	3	40	8		考试 Exam	1	
GR181008	中国近现代史纲要 Essentials of Modern Chinese History	48	3	40	8		考试 Exam	2	
GR182014	马克思主义基本原理 Principles of Marxism	48	3	40	8		考试 Exam	3	
GR183004	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thoughts and Theoretical System of the Chinese Characteristic Socialism	64	4	48	16		考试 Exam	4	
GR182022	习近平新时代中国特色社会主义思想概论 Introduction to Xi Jinping Thoughts on Socialism with Chinese Characteristics in the New Era	48	3	48			考试 Exam	5	
GR180013	形势与政策（1） Situation and Policies (1)	4	0.25	4			考查 Term paper	1	
GR180014	形势与政策（2） Situation and Policies (2)	4	0.25	4			考查 Term paper	2	
GR180015	形势与政策（3） Situation and Policies (3)	4	0.25	4			考查 Term paper	3	
GR180016	形势与政策（4） Situation and Policies (4)	4	0.25	4			考查 Term paper	4	
GR180017	形势与政策（5） Situation and Policies (5)	4	0.25	4			考查 Term paper	5	
GR180018	形势与政策（6） Situation and Policies (6)	4	0.25	4			考查 Term paper	6	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR180019	形势与政策（7） Situation and Policies (7)	4	0.25	4			考查 Term paper	7	
GR180020	形势与政策（8） Situation & Policies (8)	4	0.25	4			考查 Term paper	8	
GR301004	大学生职业生涯规划与就业指导（1） Career Planning and Employment Guidance for University Students (1)	20	1	16	4		考试 Exam	2	
GR303005	大学生职业生涯规划与就业指导（2） Career Planning and Employment Guidance for University Students (2)	18	1	12	6		考试 Exam	6	
GR301005	大学生心理素质教育（1） Mental Health (1)	16	1	16			考查 Term paper	1	
GR303006	大学生心理素质教育（2） Mental Health (2)	16	1	16			考查 Term paper	5	
GR301024	劳动教育与双创实践(1)Labor Education and Innovation and Entrepreneurship Practice(1)	16	1	16			考查 TermPaper	2	
GR303025	劳动教育与双创实践(2)Labor Education and Innovation and Entrepreneurship Practice(2)	16	1	16			考查 TermPaper	6	
GR302008	军事理论 Military Theory	36	1	36			考查 Term paper	1	
GR081071	大学英语(1) College English (1)	64	4	64			考试 Exam	1	
GR081072	大学英语(2) College English (2)	32	2	32			考试 Exam	2	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	线上学时 Online	考核方式 Assessment	开课学期 Semester	备注 Notes
GR081067	大学生英语素质拓展课 Competence-oriented Education for College English	32	2	32			考试 Exam	2	
GR141005	体育（1）（系列课程） Physical Education (1)	32	1		32		考试 Exam	1	
GR141006	体育（2）（系列课程） Physical Education（2）	32	1		32		考试 Exam	2	
GR142007	体育（3）（系列课程） Physical Education（3）	32	1		32		考试 Exam	3	
GR142008	体育（4）（系列课程） Physical Education（4）	32	1		32		考试 Exam	4	
GR041001	大学计算机 College Computer	32	2	10	12	10	考试 Exam	1	
GR041003	程序设计基础 A Fundamentals of Programming A	64	4	24	24	16	考试 Exam	2	
总计 Total		746	41	506	214	26			

2、通识教育选修（Selective Courses of General Education）：192 学时(192 hours)，12 学分(12 Credits)

序号 No.	课程类别 Course Classification	课程名称 Course Name	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
1	人文社科类（含在线课程） Humanities and Social Sciences Courses (Inc. Online courses)	见附件 1	7	考查 Term Paper	2-8	4 个类别中选修 7 个学分，其中，《大学生安全教育》（1 学分）必选。
2	自然科学类（含在线课程） Natural Science Courses (Inc. Online Course)	见附件 2		考查 Term Paper	2-8	
3	自然文化类 Natural Culture Courses	见附件 3		考查 Term Paper	2-8	

4	体育与健康类 Sports and Health Courses	见附件 4		考查 Term Paper	5-8	
5	创新创业教育类（含在线课程） Innovation and Entrepreneurship Courses (Inc. Online Course)	见附件 5	3	考查 Term Paper	2-8	选修 3 个学分，其中《新生研讨课》（1 学分）必选。
6	审美与艺术类 Aesthetics and Art Courses	见附件 6	2	考查 Term Paper	2-4	
总计 Total			12			

3、学科基础课程（Disciplinary Fundamental Courses）：904 学时(904 hours)，56. 5 学分(56.5 Credits)

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	考核方式 Assessment	开课学期 Semester	备注 Notes
DR191001	高等数学 A（1） Advanced Mathematics A (1)	96	6	96		考试 Exam	1	
DR191002	高等数学 A（2） Advanced Mathematics A (2)	96	6	96		考试 Exam	2	
DR192005	线性代数 Linear Algebra	32	2	32		考试 Exam	3	
DR192006	概率论与数理统计 Probability and Mathematics Statistic	48	3	48		考试 Exam	4	
DR191101	大学物理 A（1）* College Physics A (1)	64	4	64		考试 Exam	2	
DR192102	大学物理 A（2）* College Physics A (2)	64	4	64		考试 Exam	3	

课程代码 Course Code	课程名称 Course Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	考核方式 Assessment	开课学期 Semester	备注 Notes
DR111160	海洋工程与技术专业导论 Introduction to Marine Engineering and Technology	16	1	16		考查 Term Paper	1	
DR021224	工程图学 A Engineering Drawing A	56	3.5	48	8	考试 Exam	1	
SR013119	Python 语言编程 Python Language Programming	32	2	24	8	考试 Exam	2	
DR112003	海洋地质学 Marine Geology	56	3.5	48	8	考试 Exam	3	
DR113101	物理海洋学** Physical Oceanography	48	3	40	8	考试 Exam	3	
DR022201	理论力学 B Theoretical Mechanics B	48	3	48		考试 Exam	4	
DR021029	工程力学 Engineering Mechanics	56	3.5	52	4	考试 Exam	5	
DR023229	土力学 Soil Mechanics	48	3	40	8	考试 Exam	5	
	海洋专业文献检索与论文写作 Oceanography Information Retrieval and Writing	32	2	32		考查 Term Paper	5	
DR023351	结构力学 B Structural Mechanics B	32	2	32		考查 Term Paper	5	
SS043212	机器人控制技术 Robert Control Technology	48	3	32	16	考试 Exam	5	
SS043216	人工智能原理 Principles of Artificial Intelligence	32	2	24	8	考试 Exam	6	
总计 Total		904	56.5	836	68			

*侧重于力学、地磁学、振动和波等与海洋工程与技术密切相关的物理基础；**侧重于与海洋工程与技术密切相关的海洋水文、波浪与潮汐等。

4、专业核心课程（Specialized Core Courses）：464 学时(464 hours)，29 学分(29 Credits)

课程代码 Course Code	课程名称 Course Name	学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	考核方式 Assessment	开课学期 Semester	备注 Notes
	海洋资源学 Ocean Resources	48	3	32	16	考试 Exam	3	
SR114018	海洋调查技术 Marine Surveying Technology	32	2	30	2	考试 Exam	3	
SR042088	传感器原理 Principle of Transducers	32	2	32		考试 Exam	4	
	海洋工程环境学 Marine Engineering Environment	32	2	32		考试 Exam	4	
	海洋工程基础 Fundamentals of Marine Engineering	48	3	40	8	考试 Exam	4	
SR022303	工程材料 B Engineering Materials B	32	2	24	8	考试 Exam	5	
	海洋信息学 Marine Informatics	32	2	20	12	考试 Exam	6	
	海洋地球物理探测技术应用 Marine Geophysical Techniques and Their Applications	48	3	38	10	考试 Exam	5	
	海洋装备设计方法 Design Technology for Marine Equipment	48	3	36	12	考查 Term Paper	6	
	海洋工程设计方法 Design Technology for Ocean Engineering	48	3	36	12	考查 Term Paper	6	
	地球物理地质综合解释与应用 Seismic-geologic Integrated Interpretation and Application	32	2	16	16	考查 Term Paper	6	
	深海矿产资源开发技术 Technology for Deep Sea Mineral Exploration	32	2	32		考试 Exam	6	
总计 Total		464	29	368	96			

5、课程实践（Practice Courses）：30 周+128 学时 (30 weeks +128 hours)，29 学分(29 Credits)

课程代码 Course Code	课程名称 Courses Name	周数（学时） Week（hour）	学分 Credits	考核方式 Assessment	开课学期 Semester	备注 Notes
PR311003	军事技能训练 Military Theory and Training	2 周	1	考查 Term Paper	1	
PR181010	思想政治社会实践 Political Social Practice	32 学时	2	考查 Term Paper	1 夏	
PR191045	实验物理（1） Physics Experiments (1)	24 学时	1	考试 Exam	2	
PR192046	实验物理（2） Physics Experiments (2)	24 学时	1	考试 Exam	3	
	金工实习 Metalworking Practice	3 周	3	考查 Term Paper	1 夏	
	海洋工程装备与调查技术综合实习 Integrative Practical of Ocean Engineering Equipment and Investigation Technology	3 周	3	考查 Term Paper	2 夏	
	工程力学实验技术 Experimental Technology of Engineering Mechanics	48 学时	2	考查 Term Paper	5	(二选一)
	结构力学实验技术 Experimental Technology of Structural Mechanics	48 学时	2	考查 Term Paper	5	
	海洋工程综合设计 Ocean Engineering Design	3 周	3	考查 Term Paper	6	
	海洋装备综合设计 Ocean Equipment Design	3 周	3	考查 Term Paper	6	
	专业实习 Professional Practice	4 周	4	考查 Term Paper	3 夏	
	毕业论文/设计 Graduation Thesis/Design	12 周	6	考查 Term Paper	8	
总计 Total		30 周+176 学时	31			

6、专业拓展课：112 学时 (112 hours)，7 学分(7 Credits)

课程代码 Course Code	课程名称 Courses Name	总学时 Hours	学分 Credits	讲课学时 Lecture	实验学时 Experiment	考核方式 Assessment	开课学期 Semester	备注 Notes
	工程技术经济学 Engineering Technological Economics	32	2	32		考查 Term Paper	6	（四选三）
	海洋防灾减灾技术 Marine Disaster Prevention and Reduction	32	2	32		考查 Term Paper	6	
	海洋测绘 Hydrographic Surveying and Charting	32	2	32		考查 Term Paper	7	
	工程项目管理与概算 Engineering Project Management and Budget	32	2	32		考查 Term Paper	7	
	海洋资源开发及环境保护 Ocean Resource Exploration and Environmental Protection	16	1	16		考查 Term Paper	6	必选（学科前沿课）
总计 Total		112	7	112				

7、课外实践(Extracurricular practice)：6 学分 (6 Credits)

包括主题教育活动、社会实践、志愿服务、勤工助学、学科竞赛、文体活动、创新创业活动、劳动实践等，其学分的认定按照教务处相关规定执行。

Extracurricular practices include Theme Education, Social Practice, Volunteer Service, Work-study Program, Discipline Competition, Cultural and Sports Activities, Innovative and Entrepreneurial Activities, Labor Practice and so on. The credits for these extracurricular practices will be identified and calculated according to the regulations of Academic Affairs Office.

8、毕业要求与培养目标矩阵（工程教育认证类专业）

毕业要求	培养目标			
	目标 1	目标 2	目标 3	目标 4
毕业要求 1		√		
毕业要求 2		√		
毕业要求 3		√		√
毕业要求 4		√		√
毕业要求 5		√		√
毕业要求 6	√	√		
毕业要求 7		√		√
毕业要求 8	√		√	√
毕业要求 9	√		√	
毕业要求 10	√	√	√	
毕业要求 11		√		√

毕业要求 12	√			√

9、课程与毕业要求关系矩阵（工程教育专业认证参考）

毕业要求 / 课程名称	(1) 工程知识	(2) 问题分析	(3) 设计/开发解决方案	(4) 研究	(5) 使用现代工具	(6) 工程与社会	(7) 环境和可持续发展	(8) 职业规范	(9) 个人和团队	(10) 沟通	(11) 项目管理	(12) 终身学习
思想道德与法治						L	L	H	M			M
中国近现代史纲要						L		H		H		
马克思主义基本原理						L		H		H		
毛泽东思想和中国特色社会主义理论体系概论							M	H				L
习近平新时代中国特色社会主义思想概论								H				
形势与政策（1-8）							H	H				
大学生职业生涯规划与就业指导（1-2）								H				H
大学生心理素质教育（1-2）						H			H	M		M
军事理论								H		H		
大学英语（1-2）				M	M					H		L
大学生英语素质拓展课				M	L					M		
体育（1-4）									H	M		
大学计算机	L		M	M	H							
程序设计基础 A	L		H	M								
高等数学 A（1-2）		M		M								
线性代数		M	M	H	L							

毕业要求 / 课程名称	(1) 工程知识	(2) 问题分析	(3) 设计/开发解决方案	(4) 研究	(5) 使用现代工具	(6) 工程与社会	(7) 环境和可持续发展	(8) 职业规范	(9) 个人和团队	(10) 沟通	(11) 项目管理	(12) 终身学习
概率论与数理统计		M		H								
大学物理 A（1-2）	M											
海洋工程与技术专业导论	M	M				H						M
工程图学 A	H		H		H					L		L
Python 语言编程		L			H					L		
海洋地质学		M	L				L					
物理海洋学	H						M					
理论力学 B	H			M								
工程力学	H	M		M			L				M	M
土力学	H			M		M						
海洋专业文献检索与论文写作				M	H				M	M		
结构力学 B	H		M									
机器人控制技术	H							L				
人工智能原理		M			H	M		L				
海洋资源学						H	H					
海洋调查技术		M	H	M		L	M					
传感器原理	H	M	H		H							
海洋工程环境学	H		M									
海洋工程基础												
工程材料 B	H		M			M	L					
海洋信息学	M	H	M									

毕业要求 课程名称	(1) 工程知识	(2) 问题分析	(3) 设计/开发解决方案	(4) 研究	(5) 使用现代工具	(6) 工程与社会	(7) 环境和可持续发展	(8) 职业规范	(9) 个人和团队	(10) 沟通	(11) 项目管理	(12) 终身学习
海洋地球物理探测技术应用		M	H		H	M						
海洋装备设计方法	H	H	H	L	M		L		M	M		
海洋工程设计方法	H	H	H	L	M		L		M	M		
地球物理地质综合解释与应用	L	M	H		H		L					
深海矿产资源开发技术	M		H				M					
工程技术经济学	H	M	M		M	H					H	
海洋防灾减灾技术	M		H			H	M					
海洋测绘技术	L	M			H							
工程项目管理与概算						M	M	M	H		H	
(学科前沿课) 海洋资源开发及环境保护	M					H	M					M
军事技能训练									H	M		L
思想政治社会实践								H	M			H
实验物理（1-2）		M	M		M							
金工实习	H		L		M				M			
海洋工程装备与调查技术综合实习	H		M		M	M	M		M			
工程力学实验技术	H	M	M		H					M		
结构力学实验技术	H	M	M		H					M		
海洋工程综合设计	H	H	H						M	M		

毕业要求 课程名称	(1) 工程知识	(2) 问题分析	(3) 设计/开发解决方案	(4) 研究	(5) 使用现代工具	(6) 工程与社会	(7) 环境和可持续发展	(8) 职业规范	(9) 个人和团队	(10) 沟通	(11) 项目管理	(12) 终身学习
海洋装备综合设计	H	H	H						M	M		
专业实习		H	H	M						H		
毕业实习与毕业设计/论文	H	H	H	H	H					M		M
社会实践									H	H		H
科研训练		H	H	H	H							H
创业活动						L		M	H	H	H	M