

武汉理工大学交通学院

School of Transportation of
Wuhan University of Technology

2014 版本本科培养方案

Undergraduate Education Plan (2014)

武汉理工大学教务处

Academic Affairs Office of Wuhan University of Technology

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【道路桥梁与渡河工程专业】2014 版本本科培养方案

Undergraduate Education Plan for Specialty in Road, Bridge and River-crossing Engineering (2014)

专业名称	道路桥梁与渡河工程	主干学科	力学、土木工程、交通运输工程
Major	road, bridge and river-crossing engineering	Major Disciplines	Mechanics, Civil Engineering, Traffic and Transportation Engineer
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of engineering
所属大类	交通运输类	大类培养年限	1.5 年
Disciplinary	Traffic transportation	Duration	1.5 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	39.5	43	\	26	\	190
选修课 Elective Courses	9	6	11.5	10	\	10	

一、培养目标与毕业要求

I Educational Objectives & Requirement

(一) 培养目标

- (1) 身心健康，具备良好的敬业精神、社会责任感和工程职业道德，关注当代全球和社会问题，具有质量意识、环境意识和安全意识。
- (2) 具有扎实的数学、力学、自然科学和工程技术的基础理论知识，较好的人文社会科学、法律法规、经济管理及相关学科的基本理论知识；
- (3) 掌握道路工程及桥梁工程领域较扎实的技术理论基础知识和宽广的专业知识；了解学科前沿及发展趋势。
- (4) 具有本专业必需的测量、设计、计算、施工组织以及文献检索等基本技能及较强的计算机应用能力和英语应用能力；
- (5) 具有较强的自学能力、实践能力、工程设计能力、创新意识和较高的综合素质。

Educational Objectives

- (1) Be sound in body and mind, industrious with work, a strong sense of social responsibility and intense work ethic, be concerned and aware about the global and social issues, be focused on quality, environment and safety.
- (2) A thorough grounding of knowledge in mathematics, mechanics, science and engineering, a good grounding of knowledge in humanities and social sciences, law, economic management and related disciplines
- (3) A thorough grounding of professional knowledge in road and bridge engineering, a good

understanding of the front and trends of the subject.

- (4) Be qualified with the basic skills required by the subject, such as measurement, design, calculation, construction organization and literature search, have excellent computer and English application ability.
- (5) Have excellent self-learning ability, practice ability, engineering design ability, innovation consciousness, and have a high comprehensive quality.

(二) 毕业要求

1. 素质要求

- (1) 具备良好思想道德素质, 包括政治素质、思想素质、道德品质、法制意识、诚信意识等。具有一定的协调、管理、竞争与合作的基本能力, 具有团队合作精神, 适应团队运行、成长和壮大中的各种变迁, 初步具备带领团队前行的指向和能力基础。
- (2) 具备良好文化素质, 包括文化素养、文学艺术修养、现代意识、人际交往等。能够熟练利用现代交流媒介进行工程表达, 并进行工程文件的编纂, 如: 可行性分析报告、项目任务书、投标书等, 并可进行说明与阐释, 具备较强的人际交往能力, 能够控制自我并了解和理解他人需求和意愿, 具备较强的适应能力, 以灵活多样的方式处理不断变化的人际环境和工作环境。
- (3) 具备良好科学素质, 包括科学思维方法、科学研究方法、求实创新意识等。
- (4) 具备良好身心素质, 包括身体素质、心理素质等。

2. 能力要求

- (5) 具有良好的获取知识的能力, 包括自学能力、表达能力、社交能力、计算机及信息技术应用能力等, 具有为保持和增强职业能力, 适应发展的学习能力, 具有较强的求知欲和跨专业、跨文化的学习交流能力, 能够参与跨专业及国际性的竞争与合作。
- (6) 应用知识能力。具有能利用所学的理论知识与技术手段分析、解决实际工程问题的能力, 具有能够参与施工组织设计, 并具有道桥工程施工现场管理的能力。
- (7) 创新能力。具有对工程问题的基本认知、工程推理和判断能力, 能够发现、分析和判断问题的症结所在, 具有较强的创新意识和进行工程开发和设计、技术改造与创新的初步能力。

3. 知识要求

具有从事道路桥梁与渡河工程工作所需的基础科学技术知识以及一定的人文和社会科学知识

- (8) 数理知识和相关自然科学知识包括数学、物理、化学、测试与试验技术等。
- (9) 工程技术知识包括工程制图、机械、工程力学, 电工电子技术、结构设计基础、计算机技术等相关学科的知识。
- (10) 人文和社会科学知识: 具备较丰富的工程经济、管理、社会学、情报交流、法律、环境等人文与社会学的知识。
- (11) 熟练掌握一门外语, 具有综合应用各种手段进行资料查询、获取信息的能力;
掌握扎实的道路桥梁工程基础知识和相关的方法、技能
- (12) 掌握道路桥梁工程基础知识, 包括理论力学、材料力学、结构力学、道路建筑材料、测量学、工程地质、土质土力学等。
- (13) 掌握结构设计基本原理与方法, 掌握混凝土基本构件、预应力混凝土受弯构件、钢结构的设计原理和方法, 根据各种结构构件的受力特点、设计计算理论及一般构造要求, 正确、合理地选用材料, 拟定截面尺寸, 安全、经济、合理地设计出符合使用要求的结构。

- (14) 掌握道路桥梁工程中常用的绘图和计算软件，如 CAD、Midas、纬地等。
拥有道路桥梁工程方面的专业技术知识，了解本专业的发展现状和趋势
- (15) 掌握道路勘测、路基工程、路面工程、桥梁工程设计原理与方法；
- (16) 具有道路与桥梁工程领域内重要测试与试验仪器的使用、材料与结构试验、力学分析与计算、工程制图、报告撰写等能力，了解本专业学科的最新专业理论与技术发展方向。

Educational Requirement

1. Quality requirement

- (1) Have good ideological and moral quality, including political quality ideological quality, moral quality, legal consciousness and credit legal consciousness. Be qualified with the basic quality of coordination, management, competition and cooperation and the consciousness of team work, be adaptable to the change in the operation, growth and development process of team, preliminarily have a capability to lead a team.
- (2) Have a good cultural quality, including cultural manners, literary and aesthetic knowledge, modern consciousness and interpersonal communication, excellent use of modern media in engineering expression, be qualified with the compilation and explanation of engineering files, such as feasibility study report, project assignment book and tender, and have strong interpersonal skills, be qualified with self - control and knowing the requirement of other people, have a good adaptability, can deal with the changing personal and work environment in a flexible way.
- (3) Have good scientific quality, including methods of scientific thinking, scientific study, and innovation consciousness.
- (4) Have good physical and mind quality, including physical quality and mind quality.

2. Capability requirement

- (5) Have good capability to get knowledge, including self-study ability, presentation skill, sociality ability, computer and information technology application ability, have the learning ability to be adapt to the development in order to keep and improve professional ability, have a strong thirst for knowledge and Interdisciplinary, cross-cultural learning and communication ability, can participate in the multi – major international competition and cooperation.
- (6) The application ability of knowledge, have the ability to analyze and solve practical engineering problems using theoretical knowledge and technology, have the ability to Participate in the organization and design of construction, and have the ability to manage the construction site of road and bridge engineering.
- (7) Innovation ability, have a basic concept, reasoning and judgment ability on engineering problems, be able to identify the and strike at the roots of problems, have a strong innovation consciousness and elementary ability to design, development, Technological renovation and Innovation of engineering projects.

3. Knowledge requirement

Have the basic science and technology knowledge and humanities and social sciences required by the work on the field of road, bridge and river-crossing engineering.

- (8) Mathematical knowledge and related scientific knowledge, including mathematics, physics, chemistry and experimental technique
- (9) Engineering technology knowledge, including Engineering Graphics, engineering

mechanics, electrical and electronic technology, fundamental structural design, computer science and other related knowledge.

- (10) Humanities and social science knowledge, have abundant knowledge on engineering economics, management, sociology, information exchange, law and environment.
- (11) Master a foreign language, have the ability to research and get information using all kinds of media.

Master the basic knowledge and related skills of road and bridge engineering

- (12) Master the basic knowledge of bridge engineering, including theoretical mechanics, strength of materials, structural mechanics, Road Construction Materials, Measurement Theory, Engineering Geology, soil mechanics.
- (13) Master the basic principles and methods of structural design, master the design principles and methods of basic concrete members, prestressed flexural concrete members and steel structure. According to the strength characteristics of these kinds of structure, theory of design, and general requirement of configurations, the materials should be chosen correct or reasonably, the cross section should be determined preliminarily, and the structure designed should be safe, economic and reasonably.
- (14) Master the drawing programs and calculation software, such as autoCAD, Midas and HintCAD.

Master the professional knowledge in road and bridge engineering, understand the development status and trend of the subject.

- (15) Master the principle and method of highway survey and design, subgrade engineering, pavement engineering and bridge Engineering
- (16) Have the ability to use the important experimental equipments in the field of road and bridge engineering, master the basic test method of materials and structures, and be able to perform the simulation and analysis of structures, draw the engineering graphics and write report. Know the latest development trend of theory and technology of the subject.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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			✓		
毕业要求 13			✓	✓	
毕业要求 14				✓	✓
毕业要求 15			✓	✓	
毕业要求 16				✓	✓

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程:

工程地质、结构力学、土力学、基础工程、道路建筑材料、测量学、混凝土结构、钢结构、道路勘测设计、路基路面工程、桥梁工程

Engineering Geology, Structural Mechanics, Soil Mechanics, Foundation Engineering, Road Construction Materials, Concrete Structures Theory, Steel Structures, Highway Survey and Design, Subgrade and Pavement Engineering, Bridge Engineering.

(二) 专业特色课程:

涉外工程、轨道工程、浮桥工程

Characteristic Courses: Overseas civil engineering, Rail Engineering, pontoon engineering

附：毕业要求实现矩阵：

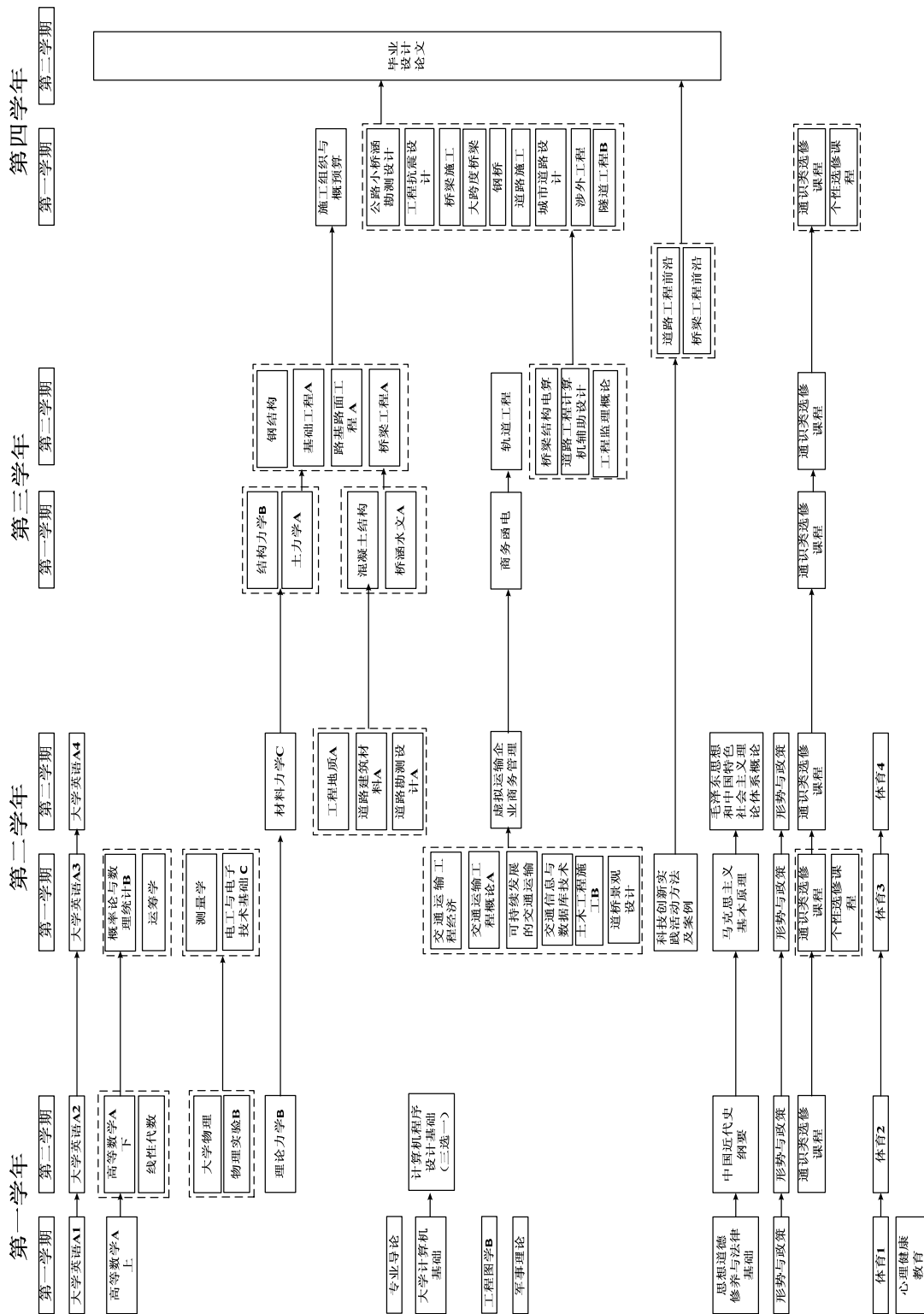
专业 核心 课程	专业 特色 课程	课程名称	道路桥梁与渡河工程专业毕业要求															
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		思想道德修养与法律基础	√	√		√						√						
		中国近现代史纲要	√									√						
		毛泽东思想和中国特色社会主义理论体系概论	√									√						
		马克思主义基本原理	√									√						
		军事理论	√			√												
		体育	√			√												
		大学英语		√			√						√					
		大学计算机基础					√				√		√					
		计算机程序设计基础					√				√							
		心理健康教育	√			√												
		专业导论			√				√									√
		工程图学			√								√					√
		高等数学			√					√								
		理论力学			√									√				
		大学物理			√					√								
		物理实验			√													
		线性代数			√					√								
		运筹学			√													
		概率论与数理统计			√					√								

专业 核心 课程	专业 特色 课程	课程名称	道路桥梁与渡河工程专业毕业要求															
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		电工与电子技术基础			√						√							
√		测量学			√					√	√			√				√
		交通运输工程经济		√								√						
		交通运输工程概论							√			√						
		可持续发展的交通运输		√								√						
		虚拟运输企业商务管理	√	√								√						
		交通信息与数据库技术	√	√								√						
		商务函电	√	√								√						
		土木工程施工		√				√	√		√							
		道桥景观设计		√					√			√						
	√	轨道工程		√				√	√									√
		材料力学			√									√				
√		工程地质			√									√				
√		道路建筑材料			√									√				
√		道路勘测设计			√										√		√	
√		结构力学			√									√				
√		混凝土结构			√										√			
√		土力学			√									√				
		桥涵水文		√										√				
√		钢结构		√	√										√			
√		基础工程		√	√										√			
√		路基路面工程		√	√										√		√	√
√		桥梁工程		√	√										√		√	√
		施工组织与概预算		√				√				√						
		桥梁结构电算		√			√									√		
		道路工程计算机辅助设计		√			√									√		√
		工程监理概论		√			√	√										
		公路小桥涵勘测设计						√							√			

专业 核心 课程	专业 特色 课程	课程名称	道路桥梁与渡河工程专业毕业要求															
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		工程抗震设计							√						√			√
		桥梁施工		√				√	√									√
		大跨度桥梁			√				√						√			√
		钢桥			√				√						√			
		道路施工		√				√	√									√
		城市道路设计			√				√						√			
√		涉外工程			√				√						√			√
√		浮桥工程			√				√						√			√
		隧道工程			√				√						√			
		道路工程前沿			√	√		√	√									√
		桥梁工程前沿			√	√		√	√									√
		科技创新实践活动方法及案例			√	√			√									√
		军事训练	√			√												
		认识实习	√	√	√		√		√									√
		地质实习		√			√		√		√							√
		测量实习		√			√		√		√							√
		建筑材料综合实验		√	√													√
		道路勘测设计课程设计		√	√										√			
		道路勘测实习		√													√	
		混凝土结构课程设计		√	√										√			
		桥梁工程——桥梁方案课程设计		√	√										√		√	
		基础工程课程设计		√											√		√	
		钢结构课程设计		√											√	√	√	
		桥梁工程——结构计算课程设计		√											√	√	√	
		路基路面工程课程设计		√											√		√	
		毕业设计（论文）	√	√	√		√	√	√				√	√	√	√	√	√

三、课程教学进程图

III Teaching Process Map



四、理论教学建议进程表

IV Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur				
通 识 课 程 Public Basic Courses	必修课程 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6			
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6			
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6			
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6			
		1060003131	军事理论 Military Theory	1	32			16		1			
		4210001111	体育 1 Physical Education I	1	32					1			
		4210002111	体育 2 Physical Education II	1	32					2	体育 1		
		4210003111	体育 3 Physical Education III	1	32					3	体育 2		
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3		
		1050001131	心理健康教育 Mental Health Education	1	16					1			
		4030002111	大学英语 A1 College English A 1	3	64				16	1			
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1		
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2		
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3		
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1			
		程序设计语言课程组(三选一, 3 学分)											
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48			12			2		
		4120024111	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48			12			2		
		4120025111	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48			12			2		
		小 计 Subtotal				35	736		24	64	64		
	选修课程 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses			全校学生要求至少取得 9 个学分, 且必须选修艺术体育类课程中的艺术类相关课程, 取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程, 其他专业学生至少选修一门科学技术类课程。 All students are required to obtain at least 9 credits, and must select art courses from Art and Physical Education Courses to obtain at least 2 credits. Science and engineering students should select at least one course from Arts and Social Science Courses or Economy and Management Courses, and other students should select at least one course from Science and Technology Courses.								
		人文社科类 Arts and Social Science Courses											
		经济管理类 Economy and Management Courses											

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
科学技术类 Science and Technology Courses												
艺术体育类 Art and Physical Education Courses												

学 科 大 类 课 程 Basic Disciplinary Courses	必修课程 Required Courses	4140248111	专业导论 Introduction to the Program	1	16					1		
		4180017111	工程图学 B Engineering Graphics B	4	64		4			1		
		4050063111	高等数学 A 上 Advanced Mathematics A1	5	80					1		
		4050064111	高等数学 A 下 Advanced Mathematics A2	5	80					2	高等数学 A 上	
		4140126111	理论力学 B Theoretical Mechanics B	3	48					2		
		4050229111	线性代数 Linear Algebra	2.5	40					2		
		4050463131	大学物理 Physics	5	80					2		
		4050224111	物理实验 B Physics Lab. B	1	32	32				3	大学物理 B	
		4050254111	运筹学 Operational Research	3	48					3	线性代数	
		4050058111	概率论与数理统计 B Probability and Mathematical Statistics B	3	48					3		
		4100012111	电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C	4	64	10				3		
		4140356131	测量学 Measurement Theory	3	48	6				3		
		小 计 Subtotal			39.5	648	48	4				
	选修课程 Elective Courses	4140115111	交通运输工程经济 Engineering Economics of Transportation	2	32					3		
		4140113111	交通运输工程概论 A An Introduction to Transportation Engineering A	2	32					3		
		4140124111	可持续发展的交通运输 Sustainable Transportation	2	32					3		
		4140107111	交通信息与数据库技术 Traffic Information and Database Technique	2	32					3		
		4140143111	土木工程施工 B Construction of Civil Engineering B	2	32					3		
		4140052111	道桥景观设计 Landscape Design for Highway and Bridge	2	32					3		
		4140406131	虚拟运输企业商务管理 Virtual transport enterprise business management	2	32					4		
		4140136111	商务函电 Business Correspondence	2	32					5		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crts	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140083111	轨道工程 Rail Engineering	2	32					6		
		小 计 Subtotal		18	288							
		修读说明：要求至少选修 6 学分。 NOTE: Minimum subtotal credits:6										
专 业 课 程 Specialized Courses	必修课程 Required Courses	4140004111	材料力学 C Materials Mechanics C	4	64	4				4	高等数学 A 下	
		4140065111	工程地质 A Engineering Geology A	2.5	40	4				4		
		4140043111	道路建筑材料 A Road Construction Materials A	3	48					4	材料力学 C	
		4140049111	道路勘测设计 A Highway Survey and Design A	4	64					4		
		4140120111	结构力学 B Structure Mechanics B	5	80					5	材料力学 C	
		4140090111	混凝土结构 Concrete Structures Theory Structural	4	64					5	材料力学 C	
		4140141111	土力学 A Soil Mechanics A	3.5	56	6				5	材料力学 C	
		4140131111	桥涵水文 A Hydrology of Bridge and Culvert A	2	32					5	概率论与数理统计 B	
		4140055111	钢结构 Steel Structures	2	32					6	结构力学 B	
		4140092111	基础工程 A Infrastructure Engineering A	2.5	40					6	结构力学 B	
		4140415131	路基路面工程 A Subgrade and Pavement Engineering A	4	64	6				6	土力学 A	
		4140132111	桥梁工程 A Bridge Engineering A	4.5	72					6	结构力学 B /混凝土结构	
		4140137111	施工组织与概预算 Construction Organizing and Budgeting	2	32					7	混凝土结构/桥梁工程 A	
		小 计 Subtotal		43	688	20						
	选修课程 Elective Courses	4140134111	桥梁结构电算 Structural analysis of Bridge	2.5	40		24			6	结构力学 B	
		4140272121	道路工程计算机辅助设计 Highway CAD	2.5	40		24			6	道路勘测设计 A	
		4140068111	工程监理概论 Introduction to Engineering Supervision	2	32					6		
		4140080111	公路小桥涵勘测设计 Survey and Design of Little Bridges and Culverts of Highway	2	32					7	桥涵水文 A	
		4140075111	工程抗震设计 Seismic Design for Engineering Structures	2	32					7	结构力学 B	
		4140135111	桥梁施工 Bridge Constructions	2.5	40			8		7	桥梁工程 A	
		4140164111	大跨度桥梁 Long-Span Bridges	2	32					7	桥梁工程 A	

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140057111	钢桥 Steel Bridges	2	32					7	桥梁工程 A	
		4140050111	道路施工 Construction of Highway	2.5	40			8		7	路基路面工程 A	
		4140339111	城市道路设计 Design of Urban Road	2	32					7	道路勘测设计 A	
		4140313121	涉外工程 Overseas civil engineering	2	32					7	施工组织与概预算	
		4140420131	隧道工程 B Tunnel Engineering B	2.5	40					7	工程地质 A / 结构力学 B	
		小 计 Subtotal		28.5	456		48	16				
		修读说明：要求至少选修 11.5 学分 NOTE: Minimum subtotal credits:11.5										
个 性 课 程 Personalized Course	选 修 课 Elective Courses	4140434131	科技创新实践活动方法及案例 Practice Method and Case of Science and	2	32			8		3		
		4140432131	道路工程前沿 Road engineering frontier	2	32			8		7	道路工程类课程	
		4140433131	桥梁工程前沿 Bridge engineering frontier	2	32			8		7	桥梁工程类课程	
		小 计 Subtotal		6	96							
		修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE: Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.										

五、集中性实践教学环节

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002111	军事训练 Military Training	3	1.5	1	
4140425131	认识实习 Practice of Recognition	0.5	0.5	4	
4140198111	地质实习 Geology Practice	0.5	0.5	4	
4140180111	测量实习 B Survey Practice B	2	2	4	
4140210111	建筑材料综合实验 Integrated Experiments of Construction	1	1	4(分散)	

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crts	建议修读学期 Suggested Term	第二专业 Second Major
4140373131	道路勘测设计课程设计 Course Design on Road Survey Design	1	1	5	
4140196111	道路勘测实习 Road Survey Practice	2.5	2.5	5	
4140410131	混凝土结构课程设计 Course Design on Concrete Structure	1	1	6	
4140419131	桥梁工程——桥梁方案课程设计 Course Design on Bridge Scheme of Bridge Engineering	1	1	6	
4140207111	基础工程课程设计 Course Design on Foundation Engineering	1	1	6	
4140199111	钢结构课程设计 Course Design on Steel Structure	1	1	7	
4140418131	桥梁工程——结构计算课程设计 Course Design on Bridge Structural Computation	1	1	7	
4140416131	路基路面工程课程设计 Course Design on Subgrade and Pavement Engineering	1	1	7	
4070175111	毕业设计（论文） Graduation Thesis	17	11	8	
小 计 Subtotal		33.5	26		

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term. The course will be arranged by the University Students' Affairs' Department in each school.

学院教学责任人：王丽铮
专业培养方案责任人：刘 芳

【交通运输专业】2014 版本本科培养方案

Undergraduate Education Plan for Specialty in Transportation (2014)

专业名称	交运运输	主干学科	交通运输工程
Major	Transportation	Major Disciplines	Transportation Engineering
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of Engineering
所属大类	交通运输类	大类培养年限	1.5 年
Disciplinary	Traffic transportation	Duration	1.5 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	39.5	37	\	28.5	\	190
选修课 Elective Courses	9	6	15	10	\	10	

一、培养目标与毕业要求

I Educational Objectives & Requirement

(一) 培养目标

- (1) 身心健康，具备良好的敬业精神、社会责任感和工程职业道德，关注当代全球和社会问题，具有质量意识、环境意识和安全意识。

Have psychosomatic health, be equipped with a high level of professionalism, social responsibility, and good professional ethics; Pay close attention to contemporary global problems and social issues, have consciousness for quality, environment and safety.

- (2) 具有从事交通运输工程，尤其是水路运输工程领域工程设计和技术服务等工作所需的工程数学、运筹学和交通运输组织学，以及经济与管理等方面的专业基础知识以及其它相关自然科学知识。

Grasp basic knowledge of mathematics, operations research and transportation organization et.al and grasp professional knowledge of economics and management that needed for jobs in transportation engineering, especially waterage engineering field, such as engineering design, technical service and management and so on.

- (3) 具有发现问题、分析问题，并综合运用所学的知识解决交通运输系统技术分析、规划、研究和应用过程中实际问题的能力。

Have capability to discover and analyze problems, to solve practical problems that happen in the process of design, planning, research for transportation engineering by using the learned knowledge.

- (4) 熟练掌握交通运输领域相关的设计、研发和开发过程所需相关工具和软硬件技术。

Master software and hardware technologies that needed in the process of R&D, design, manufacture for transportation engineering.

- (5) 具有良好的表达能力和沟通能力, 具有良好的团队意识和合作精神, 具有创新求实精神, 具有国际视野和跨文化的交流与合作能力, 具有主动适应学科发展和渗入其他学科领域的意识和能力。

Be equipped with good communication and presentation skills, have good team work and creative spirit, have international vision and inter-culture communication ability, meet the development of discipline actively and infiltrating to other related disciplines.

(二) 毕业要求

- (1) 应具有科学的世界观和正确的人生观, 坚持社会主义和共产主义的理想信念;
Have scientific and correct outlook on world and life, insist in the ideal faith of socialism and communism.

- (2) 应具有良好的道德品质、社会责任感和职业道德, 具有爱岗敬业、遵纪守法、诚实守信、自律谦让的品质, 自觉遵守所属职业体系的职业行为准则;
Have good moral character, the sense of social responsibility and professional ethics, have good qualities as conscientious and meticulous in work, law-abiding, honest and trustworthy, self-discipline of humility and so on.

- (3) 具有较宽的学科背景和综合素养, 了解国际先进技术现状和发展趋势, 制定并实施职业发展计划;

Grasp wide discipline background and comprehensive quality, familiar with the current situation and development trend of international advanced technology, formulate and implement of occupation development plan;

- (4) 具有良好的身体和心理素质, 敢于挑战, 并勇于面对挫折和失败; 具有对多元文化的包容心态和宽阔的国际化视野; 具有较强的人际交往能力及团队合作精神, 能够适应不断变化的人际环境和工作环境。

Be sound in body and mind, have the courage to challenge and face the setbacks and failures, have an open mind on multicultural and have wide international horizon, be equipped with good interpersonal skills and strong team work spirit, be able to adapt to changing social and working environment.

- (5) 具有逻辑思维能力、系统思维能力及创新能力, 具有发现问题、分析问题, 并运用所学的知识综合解决交通运输实际工作中的问题;

Have the ability to logical thinking, systematical thinking and innovation, be able to discover, analyze and solve practical problems that happen in transportation engineering field by using the learned knowledge.

- (6) 具备熟练的计算机应用能力, 特别是对文档与表格以及 PPT 的制作, 掌握计算机在交通运输管理中应用的基本技术, 能够进行数据采集、处理和分析;

Master the computer operation skills, especially office software as word, excel and ppt, have the basic techniques applied in transportation management, can make data gathering, data process and data analysis.

- (7) 具有基本的英语阅读能力和会话能力, 能够运用外语知识解决实际工作中的一般问题, 具备基本的翻译专业相关科技文献的能力;

Have Basic English reading and speaking skills, be able to solve the general problem in the practical work by English.

- (8) 掌握文献检索、资料查询的基本方法、具有初步的科学研究和实际工作能力。

Grasp basic method of document retrieval and information inquiry, be equipped with

- scientific research and practical work.
- (9) 掌握哲学、历史、文学、法学知识以及艺术修养等人文社会科学的基本知识，具备人文和社会科学等方面的基本素质；
Grasp elementary knowledge of philosophy, history, literature, law, art and social science, have good humanistic quality and Social science literacy.
- (10) 掌握本专业自然科学与工程技术的基础知识和前沿知识，具备交通科学素养和工程意识；
Grasp elementary knowledge and frontier knowledge of transportation engineering, and have good scientific quality and engineering consciousness.
- (11) 掌握本专业所需的数学、物理、计算机、英语等相关学科的基本理论、基本知识和基本技能；
Grasp elementary theories, knowledge and skills of mathematics, physics, mechanics, and computer and so on that needed for transportation engineering.
- (12) 掌握综合交通运输相关的知识体系，通过专业理论与基本知识的学习，使学生建立起大交通概念，掌握交通运输技术、交通规划理论与方法，尤其是与水路运输相衔接的交通枢纽等方面的专业知识，并具有基本的工程设计和技术服务等工作的能力；
Grasp knowledge hierarchy of the integrated transportation related fields, establish the large traffic concept by learning professional theory and elementary knowledge, such as transportation technology, transport planning theory and method etc., Especially the professional knowledge of traffic hub be linked with waterage , and have the capability for engineering design and technical service .
- (13) 掌握港口相关的知识体系，通过专业理论与基本知识的学习，熟练掌握港口组织管理和技术装备的基本知识和业务知识，并具有基本的工程设计和技术服务等工作的能力；
Grasp knowledge hierarchy of the port related fields, Master the elementary knowledge and business knowledge of port organization management and technical equipment by learning professional theory, and have the capability for engineering design and technical service .
- (14) 掌握航运管理和技术，以及航运相关领域的基本知识，并具有基本的工程设计和技术服务等工作的能力；
Grasp shipping management and technology, as well as the elementary knowledge of shipping related fields, and have the capability for engineering design and technical service .
- (15) 掌握与港口和航运相关的物流专业知识，广泛拓展知识范围，通过对物流工程、物流管理、仓储与配送、供应链管理、物流仿真等课程的学习，更好的为港口与航运企业提供服务。
Grasp logistics professional knowledge related with port and shipping, push the boundaries of knowledge, to offer better services for port and shipping company by studying logistics courses as logistics management, supply chain management et.al.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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		√	√		√
毕业要求 13		√	√		√
毕业要求 14		√	√		√
毕业要求 15		√	√		√

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程:

港口装卸工艺、交通运输经济分析、现代物流学、交通运输规划概论、船舶货运技术、港口企业管理学、船舶营运组织、国际集装箱运输与多式联运、国际航运业务与水运商务、公路运输组织学、交通运输安全工程

Core Courses: Port Handling Techniques、Analysis on Transport Economics、Modern Logistics 、Introduction to Transportation Planning、Ship Stowage Techniques、Port Enterprise Management、Shipping Operation and Organization、Multimodal Transport、Shipping Business、Road Transport organization、Traffic and Transportation Safety.

(二) 专业特色课程:

港口装卸工艺, 船舶营运组织, 港口企业管理学, 国际航运业务与水运商务, 交通运输经济分析, 现代物流学

Characteristic Courses: Port Handling Techniques 、Shipping Operation and Organization、Port Enterprise Management、Shipping Business、Analysis on Transport Economics、The Modern Logistics..

附: 毕业要求实现矩阵:

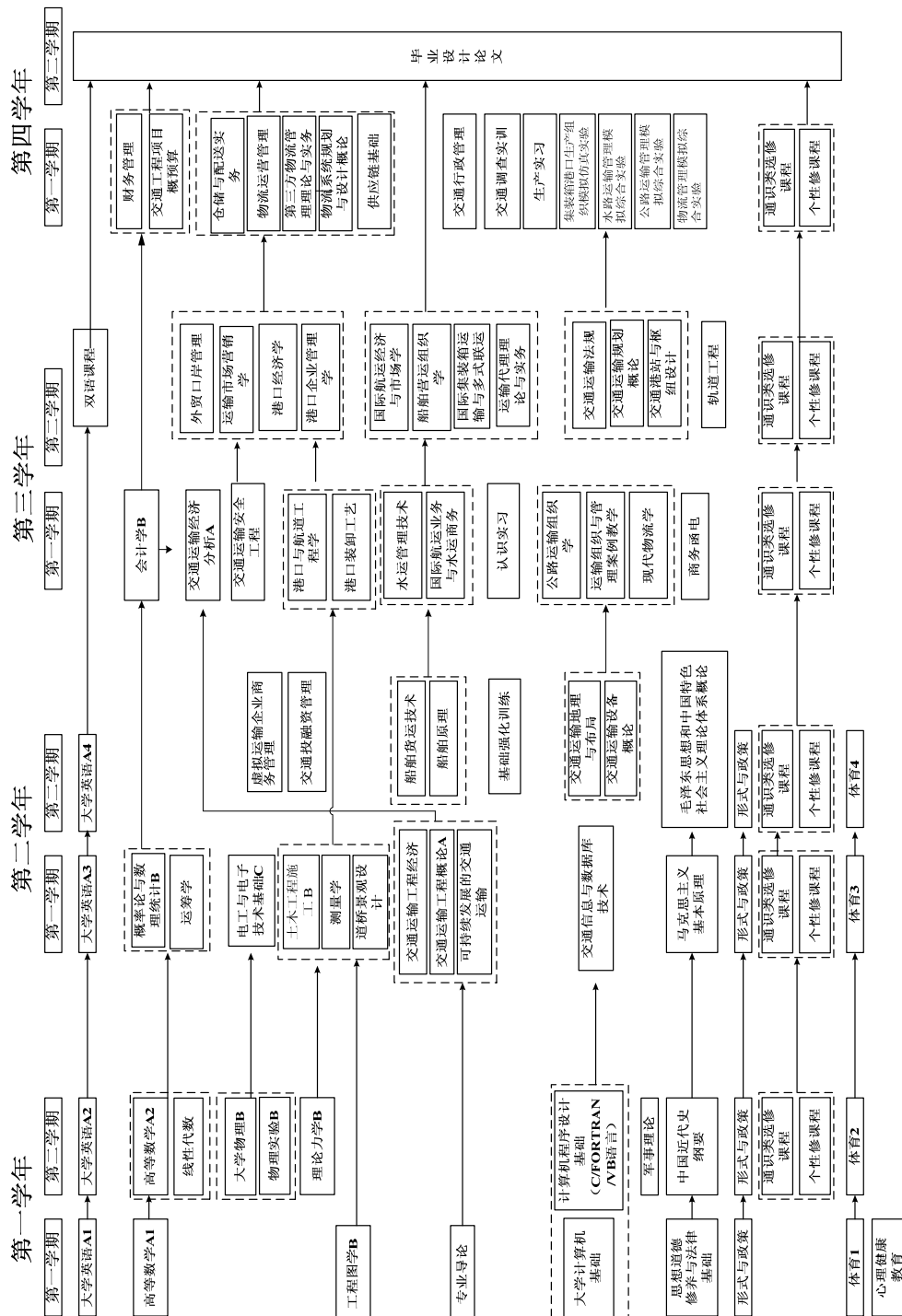
专业 核心 课程	专业 特色 课程	课程名称	交通运输专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		思想道德修养与法律基础	√	√		√					√						
		中国近现代史纲要	√	√		√					√						
		毛泽东思想和中国特色社会主义理论体系概论	√	√		√					√						
		马克思主义基本原理	√	√		√					√						
		军事理论	√	√		√					√						
		体育				√											
		心理健康教育				√											
		大学英语			√	√			√				√				
		大学计算机基础			√			√					√				
		计算机程序设计基础(C 语言)						√					√				
		高等数学											√				
		大学物理 B											√				
		工程图学 B											√				
		线性代数											√				
		运筹学					√						√	√	√	√	√
		物理实验 B											√				
		概率论与数理统计 B											√	√	√	√	√
		理论力学 B											√				
		电工与电子技术基础 C											√				
		测量学											√				
		专业导论			√							√					
		交通运输工程经济			√							√		√			
		交通运输工程概论 A			√							√		√			
		可持续发展的交通运输			√							√		√			
		交通商务网络运作概论			√							√					√
		交通信息与数据库技术						√					√				
		商务函电										√			√	√	√
		土木工程施工 B			√							√				√	√
		道桥景观设计			√							√					√

专业 核心 课程	专业 特色 课程	课程名称	交通运输专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		轨道工程			√							√					
		交通运输设备概论			√							√		√			
√		船舶货运技术			√							√				√	
		交通管理信息系统			√			√				√		√	√	√	√
		交通运输地理与布局			√							√		√	√	√	
		港口与航道工程学			√							√			√		
√	√	国际航运业务与水运商务			√							√			√	√	
√	√	现代物流学			√							√					√
√		公路运输组织学			√							√		√			
√		交通运输规划概论			√							√		√			
√	√	港口装卸工艺			√							√			√		
√	√	交通运输经济分析 A			√							√		√			
		国际航运与港口经济技术分析			√				√			√			√	√	
		物流系统规划与设计			√							√					√
		运输代理理论与实务			√							√			√	√	
√	√	港口企业管理学			√							√			√		
√	√	船舶营运组织			√							√				√	
		交通运输法规 A			√							√		√			
		运输代理理论与实务			√							√				√	
		船舶原理			√							√				√	
		交通投融资管理			√							√		√			
		运输组织与管理案例教学			√							√		√			√
		水运管理技术			√				√			√			√	√	
√		国际集装箱运输与多式联运			√							√		√	√	√	
		现代物流学			√							√					√
		交通运输仿真技术			√			√				√		√			
		会计学 B			√							√					
		财务管理 B			√							√					
		交通工程项目概预算			√							√		√	√	√	

专业 核心 课程	专业 特色 课程	课程名称	交通运输专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
√		交通运输安全工程			√							√		√			
		仓储与配送实务			√							√					√
		供应链管理			√							√					√
		外贸口岸管理			√							√				√	√
		物流运营管理			√							√					√
		第三方物流管理理论与实务			√							√					√
		物流系统规划与设计概论			√							√					√
		交通港站与枢纽设计			√							√		√			
		军事训练	√	√		√											
		基础强化训练						√				√	√				
		认识实习			√							√			√		
		船舶货运技术课程设计			√							√				√	
		管理信息系统课程设计			√			√				√		√	√	√	√
		港口装卸工艺课程设计			√							√			√		
		船型技术经济论证课程设计			√							√		√		√	
		交通调查实训			√							√		√			
		生产实习			√		√					√			√		
		集装箱港口生产组织模拟仿真实验			√			√				√			√		
		水路运输管理模拟综合实验			√			√				√		√			
		公路运输管理模拟综合实验			√			√				√		√			
		物流管理模拟综合实验			√			√				√					√
		岗位实习					√	√				√		√	√	√	√
		毕业设计			√			√	√	√		√					

三、课程教学进程图

III Teaching Process Map



四、理论教学建议进程表

IV Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
通 识 课 程 Public Basic Courses	必修课程 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese	2	32					1-6		
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060001111	军事理论 Military Theory	1	32			16		1		
		4210001111	体育 1 Physical Education I	1	32					1		
		4210002111	体育 2 Physical Education II	1	32					2	体育 1	
		4210003111	体育 3 Physical Education III	1	32					3	体育 2	
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3	
		1050001110	心理健康教育 Mental Health Education	1	16					1		
		4030002111	大学英语 A1 College English A 1	3	64				16	1		
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1	
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2	
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3	
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1		
		程序设计语言课程组(三选一, 3 学分) Courses of Computer Program Design (select one out of three, Credits: 3)										
		4120024111	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2		
		4120025111	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48		12			2		
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C Language)	3	48		12			2		
		小 计 Subtotal		35	736		24	64	64			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses		全校学生要求至少取得 9 个学分, 且必须选修艺术体育类课程中的艺术类相关课程, 取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程, 其他专业学生至少选修一门科学技术类课程。 All students are required to obtain at least 9 credits, and must select art courses from <i>Art and Physical Education Courses</i> to obtain at least 2 credits. Science and engineering students should select at least one course from <i>Arts and Social Science Courses</i> or <i>Economy and Management Courses</i> , and other students should select at least one course from <i>Science and Technology Courses</i> .								
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学 科 大 类 课 程 Basic Disciplinary Courses	必修课 Required Courses	4140248111	专业导论 Introduction to the Program	1	16					1		
		4180017111	工程图学 B Engineering Graphics B	4	64		4			1		
		4050063111	高等数学 A1 Advanced Mathematics A1	5	80					1		
		4050064111	高等数学 A2 Advanced Mathematics A2	5	80					2	高等数学 A1	
		4140125111	理论力学 B Theoretical Mechanics B	3	48					2	大学物理 B	
		4050229111	线性代数 Linear Algebra	2.5	40					2	高等数学 A1	
		4050463131	大学物理 B Physics B	5	80					2		
		4050224111	物理实验 B Physics Lab. B	1	32	32				3	大学物理 B	
		4050058111	概率论与数理统计 B Probability and Mathematical Statistics	3	48					3	高等数学 A1	
		4050254111	运筹学 Operational Research	3	48					3		
		4100012111	电工与电子技术基础 C Fundamentals of Electrical Engineering	4	64	10				3	大学物理 B	
		4140006111	测量学 Measurement Theory	3	48	6				3	工程图学 B	
		小 计 Subtotal		39.5	648	48	4					
	选修课 Elective Courses	4140115111	交通运输工程经济 Engineering Economics of	2	32					3		
		4140113111	交通运输工程概论 A An Introduction to Transportation Engineering A	2	32					3		
		4140124111	可持续发展的交通运输 Sustainable Transportation	2	32					3		
		4140107111	交通信息与数据库技术 Traffic Information and Database	2	32					3		
4140143111		土木工程施工 B Construction of Civil Engineering B	2	32					3			
		4140052111	道桥景观设计 Landscape Design for Highway and	2	32					3		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140406131	虚拟运输企业商务管理 Virtual transport enterprise business manager	2	32					4		
		4140136111	商务函电 Business Correspondence	2	32					5		
		4140083111	轨道工程 Rail Engineering	2	32					6		
		小 计 Subtotal		18	288							
		修读说明：要求至少选修 6 学分。 NOTE: Minimum subtotal credits: 6.										
专 业 课 程	必 修 课 Required Courses	4140298121	交通管理信息系统 Management Information System for Transportation	3	48		16			4		
		4140110111	交通运输地理与布局 Transport Geography and Layout	2.5	40					4		
		4140262121	船舶货运技术 Ship Stowage Techniques	2	32					4		
		4140086111	国际航运业务与水运商务 International Shipping and Waterborne Business	3	48					5		
		4140081111	公路运输组织学 Road Transport Organization	2.	32					5		
		4140147111	现代物流学 Modern Logistics	2.5	40		8			5		
		4140060111	港口与航道工程学 Harbor and Waterway Engineering	2	32					5		
		4140278121	港口装卸工艺 Port Handling Techniques	3	48					5		
		4140153111	交通运输经济分析 A Analysis on Transport Economics A	2.5	40					5		
		4140058111	港口经济学 Port Economics	2.5	40					6		
		4140059111	港口企业管理学 Port Enterprise Management	3	48					6		
		4140267121	船舶营运组织 Shipping Management	2.5	40					6		
		4140282121	国际航运经济与市场学 International Shipping Economics	2.5	40					6		
		4140111111	交通运输法规 A Transport Laws and Regulations A	2	32					6		
		4140116111	交通运输规划概论 Introduction to Transportation Planning	2	32		24			6		
		小 计 Subtotal		37	592		24					
	选 修 课 Elective Courses	4140033111	船舶原理 C Ship Theory C	2	32					4		
		4140117111	交通运输设备概论 Introduction to Transportation	2	32					4		
		4140105111	交通投融资管理 Transport Investment and Financing	2	32					4		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140138111	水运管理技术 Techniques of Waterborne Management	2	32					5		
		4140478141	运输组织与管理案例教学 Case Teaching of Transportation Organization and Management	3	48					5		
		4170065111	会计学 B Accounting B	2	32					5		
		4140257111	交通运输安全工程 Traffic and Transportation Safety	2	32					5		
		4140087111	国际集装箱运输与多式联运 International Container Multimodal Transport	2	32					6		
		4140155111	运输市场营销学 Transport Marketing	2	32					6		
		4140144111	外贸口岸管理 Port Administration for Foreign Trade	2	32					6		
		4140296121	交通港站与枢纽设计 Traffic Hub and Terminal Design	3	48			16		6		
		4140152111	运输代理理论与实务 Theory and Practices of Transport Agency	2	32					6		
		4170014111	财务管理 B Financial Management B	2	32					7		
		4140146111	物流运营管理 Logistics Operation Management	2	32					7		
		4140108111	交通行政管理 Transport Administration	2	32					7		
		4140098111	交通工程项目概预算 Budgeting of Traffic Engineering Project	2	32					7		
		4140161111	仓储与配送实务 Warehousing and Distribution Practices	2	32					7		
		4140054111	第三方物流管理理论与实务 Theory and Practices of Third Party Logistics Management	2	32					7		
		4140145111	物流系统规划与设计概论 Logistics System Planning and Designing	2	32					7		
		4140082111	供应链基础 Fundamentals of Supply Chain Management	2	32					7		
		小 计 Subtotal		38.5	616			16				
		修读说明：要求至少选修 15 学分。 NOTE: Minimum subtotal credits: 15.										

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
个性化课程 Personalized Course	选修课 Elective Courses	修读说明：学生可跨专业自主选择修读全校其他专业的课程。要求至少选修 10 学分。 NOTE: Students can choose any courses from the other specialties. Minimum subtotal credits: 10.										

五、集中性实践教学环节

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002111	军事训练 Military Training	3	1.5	1	
4140208111	基础强化训练 Foundation Strengthening Training	1	1	4(暑期)	
4140181111	船舶货运技术课程设计 The design of Ship Stowage Techniques	1.5	1.5	4	
4140203111	管理信息系统课程设计 The design of Management Information System	1.5	1.5	4	
4140226111	认识实习 Practice of Understanding	1	1	5	
4140381131	港口装卸工艺课程设计 The design of Port Handling Techniques	1.5	1.5	5	
4140369131	船型技术经济论证课程设计 The design of The technical economy	1.5	1.5	6	
4140211111	交通调查实训 Practice of Traffic Investigation	1.5	1.5	7	
4140236111	生产实习 Practice of Production	2	2	7	
4140355111	集装箱港口生产组织模拟仿真实验 Simulation Experiment on Container Port Operation	1.5	1.5	7	
4140315121	水路运输管理模拟综合实验 Integrated Simulation Experiment on Water Transport Management	1	1	7	
4140281121	公路运输管理模拟综合实验 Integrated Simulation Experiment on road Transport Management	1	1	7	
4140319121	物流管理模拟综合实验 Integrated Simulation Experiment of Logistics Management	1	1	7	
4140330121	毕业论文 Graduation Thesis	17	11	8	
小 计 Subtotal		36	28.5		

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

学院教学责任人：王丽铮
专业培养方案责任人：柯姜岑

【交通工程专业】2014 版本本科培养方案

Undergraduate Education Plan for Traffic Engineering (2014)

专业名称	交通工程	主干学科	交通工程学
Major	Traffic Engineering	Major Disciplines	Traffic Engineering
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of Engineering
所属大类	交通运输类	大类培养年限	1.5 年
Disciplinary	Traffic transportation	Duration	1.5 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	39.5	35	\	29.5	\	190
选修课 Elective Courses	9	6	16	10	\	10	

一、培养目标与毕业要求

I Educational Objectives & Requirement

(一) 培养目标

- (1) 具有从事交通工程相关工作所需的工程科学技术知识以及一定的人文和社会科学知识。
- (2) 掌握扎实的交通工程专业基础知识和本专业的基本理论知识，了解本专业的发展现状和趋势。
- (3) 具备运用适当的理论和实践方法解决交通工程实际问题的能力，在交通规划、交通管理与控制、交通调查与分析、交通设计、道路勘测与设计等方面针对解决实际问题的能力得到系统化训练。
- (4) 具备良好的沟通与交流能力。
- (5) 具备良好的道德和较强的责任感。

(1) Have scientific and technical knowledge which traffic engineering works required for as well as some knowledge of the humanities and social sciences.

(2) Grasp the basics of traffic engineering and the professional basic theoretical knowledge, understand the professional development status and trends.

(3) Develop the ability to apply appropriate theoretical and practical methods to solve problems of traffic engineering, the ability to solve practical problems of traffic planning, traffic management and control, traffic survey and analysis, traffic design, and road survey and design is systematic trained.

(4) Good communication skills.

(5) Have good morals and a strong sense of responsibility.

（二） 毕业要求

- （1） 掌握数学、物理学等从事交通运输相关工作所需的自然科学知识。
- （2） 掌握工程数学、运筹学、计算机技术、交通工程学、交通规划与管理、交通管理与控制、交通系统与分析、交通安全、交通设计以及必要的土木工程、经济与管理等专业基础知识。
- （3） 掌握工程制图标准和交通运输相关方向基本制图方法。
- （4） 具备较丰富的工程经济、管理、社会学、情报交流、法律、环境等人文与社会学的知识。
- （5） 熟练掌握英语。
- （6） 掌握交通系统问题的分析方法，掌握交通工程学、交通规划与管理、交通系统分析、交通安全、交通管理与控制等方面交通的基本理论、基本知识，初步具备运用现代科学方法进行交通工程系统设计的能力。
- （7） 掌握管理部门实际操作和调度技巧，能对设备（系统）运行过程和维护进行常规管理。
- （8） 具有运用交通工程学基础知识和交通规划、交通设计、交通管理与控制等技术，能够研究交通系统出现的各种问题，并具有基本解决问题的能力。
- （9） 了解现代物流学的基本概念，掌握物流战略规划的基本内容、物流系统分析与设计的理论与方法。
- （10） 了解现代智能交通的基本概念、应用方法及其发展趋势。
- （11） 能熟练地运用计算机及其相关软件进行图形绘制、软件编程及设计交通工程专业领域内的问题研究与分析。
- （12） 熟悉国家关于交通规划、建设及运营管理的方针、政策和法规，熟悉相应的标准规范。
- （13） 掌握交通工程和交通运输管理相关知识、具有一定的在政府企事业单位从事交通管理方面工作的能力。
- （14） 掌握交通运输经济方面相关基本理论。
- （15） 掌握文献检索、资料查询的基本方法、具有初步的科学研究和实际工作能力。
- （16） 能参与制定交通工程相关项目的实施计划。
- （17） 能对交通运输系统性能的提升进行评估，并提出改进建议或方案，具备进行交通工程相关项目优化的初步能力。
- （18） 具有较强的创新意识和进行交通规划、交通管理与控制、交通安全、交通调查与分析、交通设计、道路勘测等领域的创新设计的初步能力。
- （19） 具有较强的法律意识，在法律法规规定的范畴内，按确定的相关标准和程序要求开展工作。
- （20） 能运用经济管理知识，具有项目预算和成本核算的初步能力。
- （21） 具备收集、分析、判断、归纳和选择国内外相关技术信息的能力，了解和学习交通工程领域最新理论发展趋势、最新技术知识和技术成果，不断提升自己的专业水平。
- （22） 能够运用英语进行与工程技术方面的表达、沟通和交流。
- （23） 具备较强的人际交往能力，能够控制自我并了解、理解他人需求和意愿。
- （24） 具备较强的适应能力，自信、灵活地处理新的和不断变化的人际环境和工作环境。
- （25） 具有一定的组织管理能力和进行项目任务分解、人力和资源调度的初步能力。
- （26） 具有团队协作精神，参与团队管理、协调团队工作，确保工作进度。
- （27） 具有良好的社会公德，自觉遵守社会行为规范和法律法规。
- （28） 为人正直、诚实守信，具有良好的职业道德规范，自觉遵守所属职业体系的职业行

为准则。

- (29) 具有较强的社会责任感，在环境保护、节约资源、公共安全、社会服务、社会福利、公共卫生、社会秩序等方面体现对社会的责任。
- (30) 具有较强的工作责任感，在工作质量、工作效率、工作纪律、职业健康安全、维护企业形象、关注企业发展等方面体现对工作、对企业的责任。

(1) Grasp mathematics, physics and other natural sciences knowledge which are needed to engage in traffic.

(2) Master engineering mathematics, operational research, computer technology, traffic engineering, traffic planning and management, traffic management and control, traffic systems and analysis, traffic safety, traffic design and the necessary civil engineering, economic and management professional knowledge.

(3) Master engineering drawing standards and traffic-related drawing methods.

(4) Have rich knowledge of engineering economics, management, sociology, information exchange, legal, environmental and other humanities and sociology.

(5) Good command of English.

(6) Grasp the methods to analyze the problem of traffic system, master the basic theory of traffic engineering, traffic planning and management, traffic systems analysis, traffic safety, traffic management and control and other basic knowledge, and initially have the ability of using modern scientific methods to design traffic engineering system.

(7) Master the practical management and scheduling skills, can manage the equipment (system) process of operation and maintenance.

(8) Have a basic knowledge of the use of traffic engineering and traffic planning, traffic design, traffic management and control and technology to study the problems arising in transportation systems, and the ability to basically solve the problem.

(9) Understand the basic concept of modern logistics, learn to master the basic content of logistics strategic planning theories and methods of analysis and design of logistics system.

(10) Understand the basic concepts of modern intelligent transportation, application methods and trends.

(11) Be proficient in the use of computers and related software for graphics rendering, software programming and design issues research and analysis in the field of traffic engineering.

(12) Be familiar with the national guidelines, policies and regulations on transport planning, construction and operation management, be familiar with appropriate standards.

(13) Master traffic engineering and traffic management related knowledge, has the ability to engage in traffic management work in certain government enterprises and departments.

(14) Master the basic theory of the traffic economic.

(15) Master basic method of document retrieval, have initial scientific research and practical work.

(16) Take part in implementation plan of traffic planning projects.

(17) Can give suggestions or programs of the improvements of the traffic system. Have the ability of traffic planning and optimization.

(18) Have a strong sense of innovation and initial capacity to make transportation system planning.

(19) Have a strong awareness of the law, according to the relevant standards and procedures to

determine the requirements of their work under the context of law.

(20) Can use knowledge of economic management, have an initial capacity of the project budget and cost accounting.

(21) Have certain skills of management and initial capacity of manpower and resource scheduling.

(22) Have a spirit of teamwork, participation in team management, coordination of team work to ensure the progress of work.

(23) Involved in the assessment of project, make recommendations for improvement.

(24) Be able to use English to express, communicate and exchange on the technical aspects of the project.

(25) Have strong interpersonal skills, be able to control themselves and learn to understand the needs and wishes of others.

(26) Have a strong ability of adaptation, be able to deal with new and changing interpersonal and working environment confidently and flexibly.

(27) Have team spirit, and have a certain capacity of coordination, management, competition and cooperation.

(28) Be able to track the latest technology trends in the field of traffic engineering, understand and learn the latest technical knowledge and technological achievements in the field of traffic engineering, and constantly improve their professional level.

(29) Have the ability of collection, analysis, judgment, summarize and select the relevant technical information at home and abroad, constantly add their expertise.

(30) Have good social ethics, consciously abide by social norms.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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		✓			
毕业要求 13		✓			
毕业要求 14		✓			
毕业要求 15		✓			
毕业要求 16			✓		
毕业要求 17			✓		
毕业要求 18			✓		
毕业要求 19			✓		

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
毕业要求 20			✓		
毕业要求 21			✓		
毕业要求 22				✓	
毕业要求 23				✓	
毕业要求 24				✓	
毕业要求 25				✓	
毕业要求 26				✓	
毕业要求 27					✓
毕业要求 28					✓
毕业要求 29					✓
毕业要求 30					✓

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程:

交通规划, 交通管理与控制, 道路交通安全工程, 交通设计, 交通系统分析,。

Traffic Planning, Traffic Management and Control, Road Traffic Safety Engineering, Traffic Design, Traffic System Analysis.

(二) 专业特色课程:

城市轨道交通规划与管理, 城市规划原理, 立体交叉规划与设计, 智能交通系统, 高速公路管理学, 交通场站设计, 城市客运交通, 道路交通附属设施设计, 道路交通环境工程

Planning and Management for Urban Rail Transportation, Urban Planning Theory, Interchange Planning and Design, Intelligent Transportation System, Freeway Management Theory, Transportation station Design, Urban Passenger Transportation, Road Traffic Facility Design, Traffic Environment Engineering.

附: 毕业要求实现矩阵:

专业核心课程		专业特色课程	课程名称	交通工程专业毕业要求																													
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
			思想道德修养与法律基础																		√												√
			中国近现代史纲要																														
			毛泽东思想和中国特色社会主义理论体系概论																														
			马克思主义基本原理																														
			军事理论																														
			大学英语								√																	√					
			大学计算机基础		√							√					√																
			计算机程序设计基础(C 语言)		√							√																					
			工程图学 B													√																	
			高等数学	√																													
			线性代数	√																													
			大学物理 C	√																													
			运筹学		√																												
			概率论与数理统计 B	√																													
			物理实验 B																														
			电工与电子技术基础 C	√																													

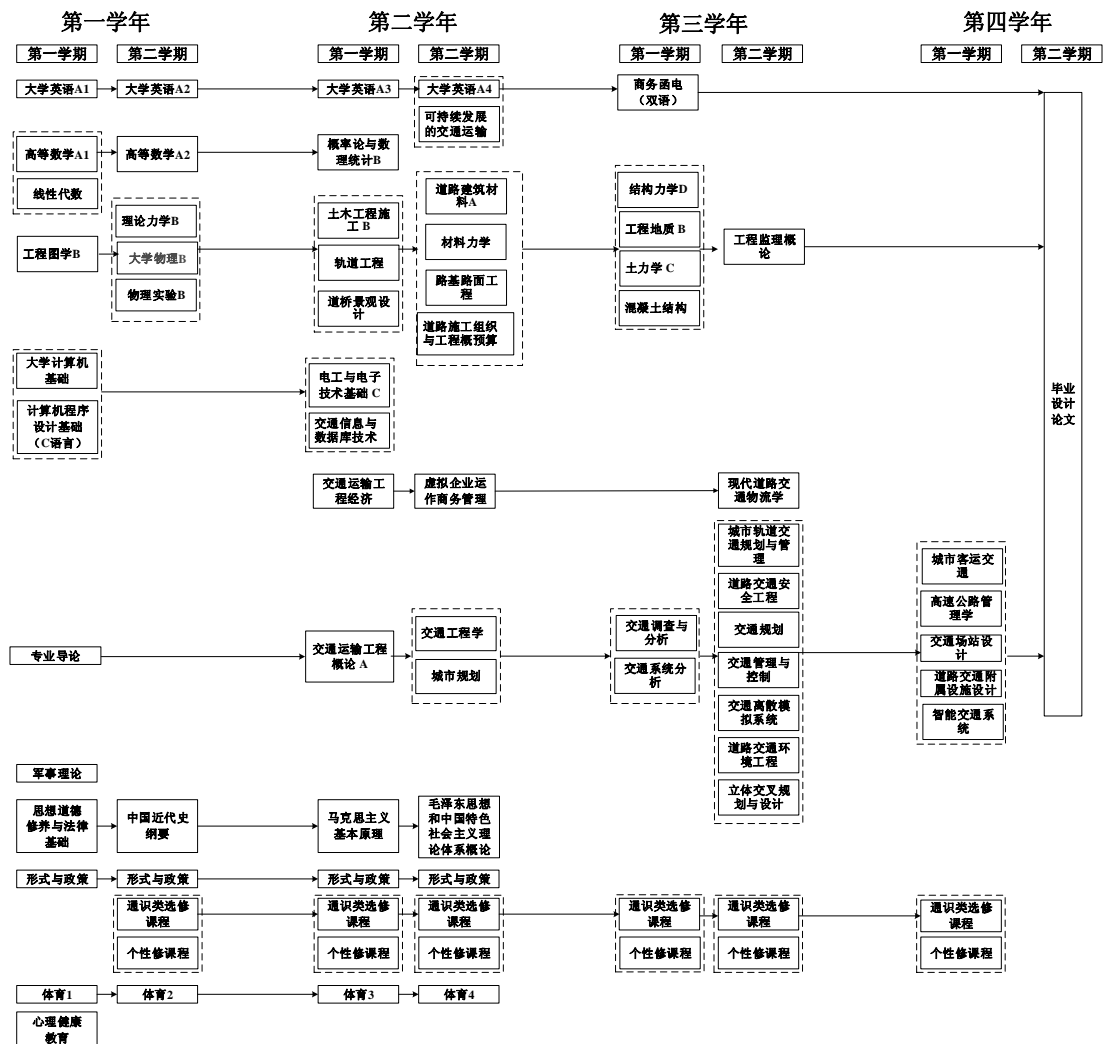
专业核心课程	专业特色课程	课程名称	交通工程专业毕业要求																														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	
		测量学		√																													
		土木工程施工		√																													
		道路建筑材料		√																													
√		交通工程学		√																													
		材料力学 D		√																													
		结构力学 D		√																													
√		城市规划原理		√		√				√		√																					
		道路勘测设计		√																													
√		交通调查与分析		√		√			√																								
√		交通系统分析		√		√																											
√		交通规划		√		√			√		√		√																				
√		交通管理与控制		√		√				√		√																					
√		道路交通安全工程		√		√			√		√		√																				
√		城市轨道交通规划与管理		√		√				√		√		√																			
√		交通设计		√		√				√		√																					
		路基路面工程		√																													
		工程地质 B		√																													

专业核 心课程	专业特 色课程	课程名称	交通工程专业毕业要求																														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	
		土力学 C		√																													
		混凝土结构		√																													
		交通离散模拟系统							√	√																							
		工程监理概论		√																													
√		道路交通环境工程		√																													
	√	立体交叉规划与设计		√		√					√		√																				
		智能交通系统		√		√	√					√																					
		道路施工组织与工程概预算		√																													
	√	高速公路管理学		√		√					√		√	√																			
	√	交通场站设计		√		√					√		√																				
	√	道路交通附属设施设计		√		√					√		√																				
	√	城市客运交通		√		√					√		√		√																		
		道路工程 CAD 实验						√		√																							
		交通系统设计								√																							
		文化教育素质选修						√																									
		交通流参数观测综合实验								√																							
		交通控制实验与设计								√																							

			交通工程专业毕业要求																														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	
专业核心课程	专业特色课程	课程名称					√		√																								
		交通系统仿真综合实验																															
		运输经济学		√		√	√					√											√										
		现代物流学										√										√											
		交通信息与数据库技术		√						√					√																		
		实践课程														√																	
		专业实践															√		√					√			√						
		实习																√		√			√		√		√		√		√		
		专项技能训练																√															
		综合能力训练																√															
		科技活动																		√				√			√						
		生产实习																		√			√										
		系统工程																					√										
		社会实践																					√				√						√
		文化活动																					√				√						
		文献检索																													√		
		毕业设计（论文）															√		√		√		√		√		√		√		√		√

三、课程教学进程图

III Teaching Process Map



四、理论教学建议进程表
IV Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
通 识 课 程 Public Basic Courses	必修课程 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003131	军事理论 Military Theory	1	32			16		1		
		1050001131	心理健康教育 Mental Health Education	1	16					1		
		4210001111	体育 1 Physical Education I	1	32					1		
		4210002111	体育 2 Physical Education II	1	32					2	体育 1	
		4210003111	体育 3 Physical Education III	1	32					3	体育 2	
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3	
		4030002111	大学英语 A1 College English A I	3	64				16	1		
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1	
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2	
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3	
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1		
		程序设计语言课程组(三选一, 3 学分) Courses of Computer Program Design (select one out of two, Credits: 3)										
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
		4120024111	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2		
		4120025111	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48		12			2		
		小 计 Subtotal		35	736		24	64	64			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses		<p>全校学生要求至少取得 9 个学分，且必须选修艺术体育类课程中的艺术类相关课程，取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程，其他专业学生至少选修一门科学技术类课程。</p> <p>All students are required to obtain at least 9 credits, and must select art courses from <i>Art and Physical Education Courses</i> to obtain at least 2 credits. Science and engineering students should select at least one course from <i>Arts and Social Science Courses</i> or <i>Economy and Management Courses</i>, and other students should select at least one course from <i>Science and Technology Courses</i>.</p>								
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学 科 大 类 课 程 Basic Disciplinary Courses	必修课 Required Courses	4140248111	专业导论 Introduction to Specialty	1	16					1		
		4180017111	工程图学 B Engineering Graphics B	4	64		4			1		
		4050229111	线性代数 Linear Algebra	2.5	40					1		
		4050063111	高等数学 A 上 Advanced Mathematics A1	5	80					1		
		4050064111	高等数学 A 下 Advanced Mathematics B II	5	80					2	高等数学 A 上	
		4140126111	理论力学 B Theoretical Mechanics B	3	48					2		
		4050463130	大学物理 B Physics B	5	80					2		
		4050224111	物理实验 B Physics Lab. B	1	32	32				2	大学物理 B	
		4050254111	运筹学 Operational Research	3	48					3		
		4050058111	概率论与数理统计 B Probability and Mathematical Statistics B	3	48					3	高等数学 A 下	
		4100012111	电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C	4	64	10				3	高等数学 A 下	
		4140006111	测量学 Measurement Theory	3	48	6				3	高等数学 A 下	
		小 计 Subtotal		39.5	648	48	4					
	选修课 Elective Courses	4140115111	交通运输工程经济 Engineering Economics of Transportation	2	32					3		
		4140113111	交通运输工程概论 A An Introduction to Transportation Engineering A	2	32					3		
4140124111		可持续发展的交通运输 Sustainable Transportation	2	32					3			
4140107111		交通信息与数据库技术 Traffic Information and Database Technique	2	32					3			
4140143111		土木工程施工 B Construction of Civil Engineering B	2	32					3			
4140052111		道桥景观设计 Landscape Design for Highway and Bridge	2	32					3			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140406131	虚拟运输企业商务管理 Virtual transport enterprise business management	2	32					4		
		4140136111	商务函电 Business Letters and Communications	2	32					5		
		4140083111	轨道工程 Rail Engineering	2	32					6		
		小 计 Subtotal		18	288							
		修读说明：要求至少选修 6 学分。 NOTE: Minimum subtotal credits: 6.										
专 业 课 程	必修课程 Required Courses	4140043111	道路建筑材料 A Road Construction Materials A	2	32					4	测量学	
		4140099111	交通工程学 Traffic Engineering	2	32					4	测量学	
		4140005111	材料力学 Materials Mechanics	3	48					4	理论力学 B	
		4140479141	城市规划 Urban Planning Theory	3	48					4		
		4140121111	结构力学 D Structure Mechanics D	3	48					5	材料力学	
		4140372131	道路勘测设计 Highway Survey and Design	3	48					5	交通工程学	
		4140096111	交通调查与分析 Traffic Investigation and Analysis	2	32					5	交通工程学	
		4140106111	交通系统分析 Traffic System Analysis	2.5	40					5	交通工程学	
		4140102111	交通规划 Traffic Planning	3	48					6	交通系统分析	
		4140101111	交通管理与控制 Traffic Management and Control	3	48					6	交通系统分析	
		4140045111	道路交通安全工程 Road Traffic Safety Engineering	2.5	40					6	交通系统分析	
		4140363131	城市轨道交通规划与管理 Planning and Management for Urban Rail Transportation	2	32					6	交通系统分析	
		4140413131	交通设计 Traffic Design	2	32					7	交通规划	
		4140310121	路基路面工程 Road Subgrade and Pavement Engineering	2	32					7		
		小 计 Subtotal		35	560							
	选修课程 Elective Courses	4140051111	道路施工组织与工程概预算 Road Construction Organizing and	2	32					4	土木工程施工 B	
		4140066111	工程地质 B Engineering Geology B	2	32					5	道路建筑材料 A	
		4140142111	土力学 C Soil Mechanic C	2	32					5	道路建筑材料 A	
		4140009111	混凝土结构 Concrete Structure	3	48					5	材料力学	

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
		4140403131	现代道路交通物流学 Modern Road Logistics	2	32					6	交通调查与分析	
		4140103111	交通离散模拟系统 Transpiration Discrete Modeling	2	32	16				6	交通调查与分析	
		4140068111	工程监理概论 An Introduction to Project Supervision	2	32					6	材料力学	
		4140047111	道路交通环境工程 Traffic Environment Engineering	2	32	8				6	交通系统分析	
		4140309121	立体交叉规划与设计 Interchange Planning and Design	2	32			8		6	交通调查与分析	
		4140159111	智能交通系统 Intelligent Transportation System	2	32					7	交通调查与分析	
		4140062111	高速公路管理学 Freeway Management Theory	2	32					7	交通规划	
		4140095111	交通场站设计 Transportation station Design	2	32					7	交通规划	
		4140046111	道路交通附属设施设计 Road Traffic Facility Design	2	32					7	交通规划	
		4140010111	城市客运交通 Urban Passenger Transportation	2	32					7	交通规划	
		小 计 Subtotal		29	464	24		8				
		修读说明：要求至少选修 16 学分。 NOTE: Minimum subtotal credits: 16.										
个性课程 Personalized Course	选修课 Elective Courses	4140435131	交通工程学研究前沿与创新案例 Traffic Engineering Research Frontier and Innovation Case	2	32			8	8	4		
		4140476131	交通工程学研究批判性思维与方法论实践 Traffic Engineering Research Critical	2	32			8		7		
		修读说明：学生从以上个性课程和学校发布的其它专业的个性课程列表中选择课，要求至少选修 10 学分。 NOTE: Students can choose any courses from above courses or other majors' personalized courses released by the university. Minimum subtotal credits: 10.										

五、集中性实践教学环节

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term
1060002111	军事训练 Military Training	3	1.5	1
4140229111	认识实习 Practice of Recognition	1	1	4
4140180111	测量实习 B Survey PracticeB	1.5	1.5	4
4140480141	基础强化训练 Foundation Strengthening Training	1	1	4（暑期）
4140217111	交通流参数观测综合实验 Integrated Experiments of Traffic Flow Parameters	1.5	1.5	5
4140374131	道路勘测与设计实验 Course Design on Road Survey	1.5	1.5	5

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term
4140	能力拓展训练 Ability Development Training	1	1	6（暑期）
4140392131	交通规划综合实验 Integrated Experiments of Traffic Planning	1.5	1.5	6
4140371131	道路工程 CAD 实验 Experiments of Road Engineering CAD	1	1	6
4140427131	道路交通安全实验与分析 Road Traffic Safety Experiments and Analysis	1	1	6
4140215111	交通控制实验与设计 Experiment and Design of Traffic Control	1.5	1.5	7
4140389131	交通系统仿真综合实验 Integrated Simulation of Traffic Control System	1.5	1.5	7
4140414131	交通设计课程实验与设计 Experiments and Design on Traffic Design	1	1	7
4140428131	生产实习 Practice of Production	3	3	8
4140423131	毕业设计（论文） Graduation Thesis	15	10	8
小 计 Subtotal		36	29.5	

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term. The course will be arranged by the University Students' Affairs' Department in each school.

学院教学责任人：王丽铮
专业培养方案责任人：赵 欣

【港口航道与海岸工程专业】2014 版本本科培养方案

Undergraduate Education Plan for Specialty in Port & Waterway and Coastal Engineering (2014)

专业名称 Major	港口航道与海岸工程专业 Port & Waterway and Coastal Engineering	主干学科 Major Disciplines	水利工程, 海洋工程, 土木工程 Water Conservancy Engineering, Ocean Engineering, Civil Engineering
计划学制 Duration	四年 4 Years	授予学位 Degree Granted	工学学士 Bachelor of Engineer
所属大类 Disciplinary	海洋工程类 Ocean Engineering	大类培养年限 Duration	1 年 1 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	40	51.5	\	20.5	\	190
选修课 Elective Courses	9	\	14	10	\	10	

一、培养目标与毕业要求

I Educational Objectives & Requirement

(一) 培养目标

Educational Objectives

- 身心健康, 具备良好的敬业精神、社会责任感和工程职业道德, 关注当代全球和社会问题, 具有质量意识、环境意识和安全意识。
Be healthy physically and mentally, possess a high level of professionalism, have a good sense of social responsibility and professional ethics, be focused on global problems and social issues, have sense for quality, environment and safety.
- 具有从事港口航道与海岸工程领域科学研究、工程设计、技术服务、施工和管理等工作所需的数学、力学等基础知识以及港口航道与海岸工程专业知识。
Master basic knowledge of mathematics, mechanics et.al and professional knowledge of Port & Waterway and Coastal Engineering that needed for jobs in this field, such as scientific research, engineering design, technical service and management and so on.
- 具有综合运用科学理论和工程技术分析、设计和研究港口航道与海岸工程相关问题的较强能力。
Have capabilities to solve problems that will happen in the process of design and construction for Port & Waterway and Coastal Engineering using the learned knowledge comprehensively.
- 熟练掌握港口航道与海岸工程相关的设计、研发、制造过程所需的相关工具和软硬件技术。
Master software and hardware technologies that needed in the process of R&D, design, manufacture for Port & Waterway and Coastal Engineering.
- 具有良好的表达能力、沟通能力、团队意识和合作精神, 具有创新求实精神, 具有国际视野和跨文化的交流、竞争与合作能力, 具有主动适应学科发展和渗入其他学科领域的意识和能力。
Have good communication skill, expression skill and team work spirit, have creative way of thinking and realistic spirit, have international vision and inter-culture communication ability, have a good sense of fitting the development of discipline actively and infiltrating to other related disciplines.

(二) 毕业要求

Educational Requirement

- 具有科学的世界观和正确的人生观, 坚持社会主义和共产主义的理想信念, 以传承文明、探求真理、振兴中华、造福人类为己任。
With the scientific world outlook and a correct outlook on life, adhere to the socialist and communist

- ideal and belief, have a sense of responsibility and mission for this major, take the responsibility of culture inheritance and rejuvenation.
- (2) 具有良好的社会责任感和职业道德，具备团队合作精神，自觉遵守所属职业体系的职业行为准则。
Have a good sense of professional ethics and social morality, have team work spirit, consciously abide by professional rules of occupation system.
- (3) 具有较宽的学科背景和综合素养，了解国际先进技术现状和发展趋势，具有对多元文化的包容心态和宽阔的国际化视野。
Have wide subject background and comprehensive quality; understand the situation and development trend of international advanced technology; have an open mind on multicultural and have wide international horizon.
- (4) 勤于思考，善于钻研，勇于创新，厚德博学，追求卓越，具有较强的观察能力、逻辑分析能力以及求实创新意识。
Be diligent in thinking and studying, be innovative, strive for virtue and knowledge, pursuit excellence; have observation ability, logic analysis ability and innovation consciousness.
- (5) 具有良好的身体和心理素质。
Be sound in body and mind.
- (6) 具有清晰思考、用语言文字准确表达的能力以及对文学艺术的初步审美能力。
Have ability to think clearly , express accurately with language and preliminary aesthetic ability to literature and art.
- (7) 具有较强的人际交往能力。
Have a good interpersonal skill.
- (8) 具有至少一种外语的应用能力以及国际交流与合作的能力。
Have at least one foreign language application ability, international communication ability and cooperation ability.
- (9) 具有应用专业基础知识从事港口航道与海岸工程项目的设计、施工、实验、管理、投资与开发等工作的能力。
Have capabilities to apply professional knowledge to carry on design, construction, experiments, management, investment and development of projects in Port & Waterway and Coastal Engineering field.
- (10) 具有逻辑思维能力和系统思维能力，能分清主次，组织、协调和开展港口航道与海岸工程相关项目。
Have ability of logical thinking and systems thinking; have ability to prioritize, have capability to organize, coordinate and develop relative projects in the field of Port & Waterway and Coastal Engineering.
- (11) 掌握文学、历史、哲学、艺术、社会科学的基本知识，具备较好的人文素养。
Master fundamental knowledge of literature, history, philosophy, art and social science, and have good humanistic quality.
- (12) 掌握自然科学与工程技术的基础知识和前沿知识，具备科学素养和工程意识。
Master basic knowledge and frontier knowledge of Port & Waterway and Coastal Engineering , and have good scientific quality and engineering consciousness.
- (13) 掌握本专业所需数学、物理、力学、计算机、英语等相关学科的基本理论、基本知识、基本技能和相关实验方法。
Master fundamental theories, knowledge, skills and experimental methods of mathematics, physics, mechanics, computer, English and so on that needed for this major.
- (14) 掌握本专业从业应具备的港口航道与海岸工程的计算分析、设计、制造和管理所需的知识和技能；学会使用港口航道与海岸工程领域的实验仪器和设备，能够进行数据采集、处理和分析。
Master knowledge and skills of calculation, analysis, design, manufacture and management for working in Port & Waterway and Coastal Engineering, grasp basic experimental methods of Port & Waterway and Coastal Engineering, learn to use experimental instruments and equipment, be familiar with data gathering, data process and data analysis.
- (15) 专业以外对本专业有用的知识的学习。
Learn other useful knowledge for this major.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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)		√		√	
毕业要求(13)		√		√	
毕业要求(14)		√	√	√	
毕业要求(15)	√				√

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程:

理论力学、材料力学、工程结构力学、水力学、土力学与基础工程、工程地质、测量学、工程材料、工程水文学、河流与海岸动力学、混凝土结构设计原理、水工钢结构设计原理与设计、港口海岸水工建筑物、航道整治、水运工程施工、港口规划与布置。

Theoretical Mechanics, Material Mechanics, Structure Mechanics, Hydraulics, Soil Mechanics, Measurement Theory, Engineering material, Engineering Hydrology, River and Coastal Hydrodynamics, Design Principle of Concrete Structure, Principle and Design of Hydraulic Steel Structures, Harbor & Coastal Engineering Hydraulic Structure, Waterway Regulation, Construction of Navigation Engineering, Port Planning and Layout.

(二) 专业特色课程:

水工结构建模与分析、水工建筑物检测与健康诊断、结构动力学、弹性力学与有限元基础、结构实验技术、桥梁工程、工程结构抗震设计、结构稳定性分析。

Characteristic Courses: Analysis and Modeling of Hydraulic Structure, Construction Detection Technique of Hydraulic Structure, Structural Dynamics, Theory of Elasticity & Finite Element Method, Structural Experiment Technology, Bridge Engineering, Seismic Design of Engineering Structure, Structural Stability Analysis.

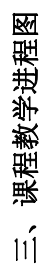
附：毕业要求实现矩阵：

专业 核心 课程	专业 特色 课程	课程名称	港口航道与海岸工程专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	√	√					√				√				
		中国近现代史纲要 Outline of Contemporary and Modern	√	√					√				√				
		毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	√	√					√				√				
		马克思主义基本原理 Marxism Philosophy	√	√					√				√				
		军事理论 Military Theory	√	√			√		√				√				
		心理健康教育 Mental Health Education					√		√				√				√
		大学计算机基础 Foundation of Computer													√	√	
		体育 Physical Education					√										√
		大学英语 College English			√					√					√		
		计算机程序设计基础 Fundamentals of Computer Program									√				√	√	
		专业导论 Introduction to the Program			√									√			
		工程图学 B Engineering Graphics B			√						√					√	
		高等数学 A Advanced Mathematics A										√					
√		理论力学 A Theoretical Mechanics A													√		
		线性代数 Linear Algebra															
		大学物理 B Physics													√		
		物理实验 B Physics Lab. B													√	√	
		概率论与数理统计 B Probability and Mathematical Statistics B													√		
		电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C												√		√	
√		材料力学 A Materials Mechanics A													√		
√		工程材料 Engineering Material												√			
√		测量学 Measurement Theory									√					√	
√		水力学 Hydraulics													√	√	
√		工程地质 A Engineering Geology A												√		√	

专业 核心 课程	专业 特色 课程	课程名称	港口航道与海岸工程专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
√		工程结构力学 Engineering Structural Mechanics													√		
√		混凝土结构设计原理 A Design Principle of Concrete Structure A													√	√	
√		工程水文学 Engineering Hydrology												√		√	
√		河流与海岸动力学 River and Coastal Hydrodynamics												√		√	
√		土力学与基础工程 Soil Mechanics and Foundation Engineering													√	√	
√		水工钢结构原理与设计 Principle and Design of Hydraulic Steel Structures													√	√	
		港口工艺学 Port Techniques										√				√	
	√	水工建筑物检测与健康诊断 Detection Technique of Hydraulic Structures													√	√	
	√	水工结构建模与分析 Analysis and Modeling of Hydraulic Structures									√				√	√	
√		航道整治与渠化工程 Waterway Regulation & Canalization Engineering									√	√				√	
√		港口海岸水工建筑物 Harbor & Coastal Engineering Hydraulic Structure									√					√	
		港口航道工程专业英语 Professional English of Harbor & Waterway Engineering			√					√					√		
√		水运工程施工 Construction of Navigation Engineering														√	
√		港口规划与布置 Port Planning and Layout									√	√					
		水运工程经济与管理 Waterway Engineering economic and management									√		√				√
		工程监理概论 Instruction to Engineering Supervision							√			√				√	
	√	结构动力学 Structural Dynamics													√		
		近海与海洋工程 Offshore and ocean Engineering											√		√		
	√	弹性力学与有限元 Theory of Elasticity & Finite Element Method													√		
		地基处理技术 Improvement Method of Foundation									√				√		
		河口与海岸演变 Estuarine and Coastal Evolution									√					√	
	√	结构稳定性分析 Structural Stability Analysis													√		

专业 核心 课程	专业 特色 课程	课程名称	港口航道与海岸工程专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		隧道工程 A Tunnel Engineering A													√	√	
		港口物流管理 Port Logistics Management									√	√				√	
	√	桥梁工程 C Bridge Engineering C												√			
		水运工程概预算 Construction Organizing and Budgeting									√						√
	√	工程结构抗震设计 Seismic Design of Engineering Structure												√			
	√	结构实验技术 Structural Experiment Technology													√	√	
		军事训练 Military Training		√		√	√		√								
		电工电子实习 B Practice of Electrical Engineering & Electronics B												√		√	
		测量实习 B Engineering Survey Practice									√					√	
		认识实习 Practice of Understanding			√	√								√		√	
		混凝土结构设计原理课程设计 Course Design on Concrete Structure						√			√				√	√	
		专业实习 Practice of Specialty			√	√								√		√	
		港航工程综合实验 Experiment of Harbor & Waterway Engineering												√	√	√	
		毕业论文 Graduation Thesis			√	√		√		√	√		√	√	√	√	

III Teaching Process Map



四、理论教学建议进程表

IV Theory Course Schedule

IV Theory Course Schedule													
课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur				
通 识 课 程 Public Basic Courses	必修课程 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6			
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6			
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6			
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6			
		1060001111	军事理论 Military Theory	1	32			16		2-4			
		1050001131	心理健康教育 Mental Health Education	1	16					1			
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1			
		4210001111	体育 1 Physical Education I	1	32					1			
		4210002111	体育 2 Physical Education II	1	32					2	体育 1		
		4210003111	体育 3 Physical Education III	1	32					3	体育 2		
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3		
		4030002111	大学英语 A1 College English A 1	3	64				16	1			
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1		
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2		
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3		
		程序设计语言课程组(三选一, 3 学分) Course Group of Computer Program Design(One in Three, 3 Credits)											
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design	3	48			12			2		
		4120024111	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design	3	48			12			2		
		4120025111	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design	3	48			12			2		
		小 计 Subtotal				35	736		24	64	64		
	选修课程 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses			全校学生要求至少取得 9 个学分, 且必须选修艺术体育类课程中的艺术类相关课程, 取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程, 其他专业学生至少选修一门科学技术类课程。 All students are required to obtain at least 9 credits, and must select art courses from Art and Physical Education Courses to obtain at least 2 credits. Science and engineering students should select at least one course from Arts and Social Science Courses or Economy and Management Courses, and other students should select at least one course from Science and Technology Courses.								
		人文社科类 Arts and Social Science Courses											
		经济管理类 Economy and Management Courses											

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学 科 大 类 课 程 Courses Basic Disciplinary	必修课程 Required Courses	4140160111	专业导论 Introduction to the Program	1	16					1		
		4180017111	工程图学 B Engineering Graphics B	4	64		4			1		
		4050063111	高等数学 A1 Advanced Mathematics A1	5	80					1		
		4050064111	高等数学 A2 Advanced Mathematics A2	5	80					2		
		4140125111	理论力学 A Theoretical Mechanics A	4.5	72					2		
		4050229111	线性代数 Linear Algebra	2.5	40					2		
		4050024111	大学物理 Physics	5	80					2		
		4050224111	物理实验 B Physics Lab. B	1	32	32				3		
		4050058111	概率论与数理统计 B Probability and Mathematical Statistics B	3	48					3		
		4100012111	电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C	4	64	10				3		
		4140002111	材料力学 A Materials Mechanics A	5	80	8				3		
		小 计 Subtotal		40	656	50						
专 业 课 程 Courses Specialized	必修课程 Required Courses	4140423131	工程材料 Engineering Material	2	32	8				4		
		4140006111	测量学 Measurement Theory	3	48					4		
		4140399131	水力学 Hydraulics	4	64	8				4		
		4140065111	工程地质 A Engineering Geology A	2.5	40	4				4		
		4140074111	工程结构力学 Engineering Structural Mechanics	4	64					4		
		4140091111	混凝土结构设计原理 A Design Principle of Concrete Structure A	4	64	6				5		
		4140382131	工程水文学 Engineering Hydrology	2	32					5		
		4140385131	河流与海岸动力学 River and Coastal Hydrodynamics	2	32					5		
		4140141111	土力学与基础工程 Soil Mechanics and Foundation Engineering	4	64	6				5		
		4140396131	水工钢结构原理与设计 Principle and Design of Hydraulic Steel Structures	3	48					5		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140377131	港口工艺学 Port Techniques	2	32					6		
		4140149111	水工建筑物检测与健康诊断 Detection Technique of Hydraulic Structures	3	48	16				6		
		4140398131	水工结构建模与分析 Analysis and Modeling of Hydraulic Structures	2.5	40		16			6		
		4140395131	航道整治与渠化工程 Waterway Regulation & Canalization Engineering	2	32					6		
		4140379131	港口海岸水工建筑物 Harbor & Coastal Engineering Hydraulic Structure	3	48					6		
		4140380131	港口航道工程专业英语 Professional English of Harbor & Waterway Engineering	1.5	24					6		
		4140401131	水运工程施工 Construction of Navigation Engineering	3	48					7		
		4140378131	港口规划与布置 Port Planning and Layout	2	32					7		
		4140357131	水运工程经济与管理 Waterway Engineering Economic and Management	2	32					7		
		小 计 Subtotal		51.5	824	48	16					
	选修课 Elective Courses	4140068111	工程监理概论 Instruction to Engineering Supervision	2	32					5		
		4140118111	结构动力学 Structural Dynamics	3	48					5		
		4140370131	弹性力学与有限元 Theory of Elasticity & Finite Element Method	3	48					5		
		4140394131	近海与海洋工程 Offshore and ocean Engineering	2	32					6		
		4140429131	地基处理技术 Improvement Method of Foundation	2	32					6		
		4140391131	河口与海岸演变 Estuarine and Coastal Evolution	1	16					6		
		4140123111	结构稳定性分析 Structural Stability Analysis	2	32					6		
		4140139111	隧道工程 A Tunnel Engineering A	3	48					6		
		4140430131	港口物流管理 Port Logistics Management	2	32					7		
		4140133111	桥梁工程 C Bridge Engineering C	4	64					7		
		4140137111	水运工程概预算 Construction Organizing and Budgeting	2.0	32					7		
		4140072111	工程结构抗震设计 Seismic Design of Engineering Structure	2	32					7		
		4140122111	结构实验技术 Structural Experiment Technology	2	32	8				7		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议 修读 学期 Suggested Term	先修课程 Prerequisite Course	第二 专业 Second Major
		总学时 Tot hrs.	实验 Exp.		上机 Ope- ration	实践 Prac- tice	课外 Extra- cur					
		小 计 Subtotal			30	480	8					
修读说明：要求至少选修 14 学分。 NOTE: Minimum subtotal credits: 14.												
个 性 课 程 Personalized Course	选 修 课 Elective Courses	修读说明：学生可跨专业自主选择修读全校其他专业的课程。要求至少选修 10 学分。 NOTE: Students can choose any courses from the other specialties. Minimum subtotal credits: 10.										

五、集中性实践教学环节

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4100069110	电工电子实习 B Practice of Electrical Engineering & Electronics B	1	1	4	
4140180111	测量实习 B Engineering Survey Practice	2	2	4	
4140231111	认识实习 Practice of Understanding	1	1	5	
4140206111	混凝土结构设计原理课程设计 Course Design on Concrete Structure	1	1	5	
4140425131	专业实习 Practice of Specialty	1	1	6	
4140376131	港航工程综合实验 Experiment of Harbor & Waterway Engineering	2	2	7	
4140424131	毕业论文 Graduation Thesis	17	11	8	
小 计 Subtotal		28	20.5		

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term. The course will be arranged by the University Students' Affairs' Department in each school.

学院教学责任人：王丽铮
专业培养方案责任人：潘 晋

【船舶与海洋工程专业】2014 版本本科培养方案

Undergraduate Education Plan for Specialty in Ship and Ocean Engineering (2014)

专业名称	船舶与海洋工程学	主干学科	船舶与海洋工程
Major	Ship and Ocean Engineering	Major Disciplines	Ship and Ocean Engineering
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of Engineering
所属大类	海洋工程类	大类培养年限	1 年
Disciplinary	Ocean Engineering	Duration	1 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	39	52.5	\	21.5	\	190
选修课 Elective Courses	9	\	13	10	\	10	

专业选修课至少修满 13 学分；修读第二专业必须修完本培养计划中打“*”号课程（44 学分）和毕业设计（10 学分）。

At least 13 credits are required when taking major courses. Students in other majors who take this program as their second majors must finish all those courses with the mark “*” (44 credits) together with the graduation thesis (10 credits).

一、培养目标与毕业要求

I Educational Objectives & Requirements

（一）培养目标

Educational Objectives

- （1）身心健康，具备良好的敬业精神、社会责任感和工程职业道德，关注当代全球和社会问题，具有质量意识、环境意识和安全意识。

Students will be healthy physically and mentally, will possess a high level of professionalism, have a good sense of social responsibility, and have a good professional ethics, they will focus on global problems and social issues, will have sense for quality, environment and safety.

- （2）具有从事船舶与海洋工程领域科学研究、工程设计、技术服务和管理等工作所需的数学、力学等基础知识以及船舶与海洋工程专业知识。

Students will master basic knowledge of mathematics, mechanics et.al and professional knowledge of ship and ocean engineering that needed for jobs in ship and ocean engineering field, such as scientific research, engineering design, technical service and management and so on.

- （3）具有综合运用所学知识解决船舶与海洋工程设计与建造实际问题的较强能力。

Students will have strong capabilities to solve problems that will happen in the process of design and construction for ship and ocean engineering using the learned knowledge comprehensively.

- (4) 熟练掌握船舶与海洋工程相关研发、设计、制造过程所需的软硬件技术。

Students will master software and hardware technologies that needed in the process of R&D, design, manufacture for ship and ocean engineering.

- (5) 具有良好的表达能力和沟通能力，具有良好的团队意识和合作精神，具有创新求实精神，具有国际视野和跨文化交流能力，具有主动适应学科发展和渗入其他学科领域的意识。

Students will be with good communication skill and expression skill, will have good team work spirit, will have creative way of thinking and realistic spirit, will have international vision and inter-culture communication ability, and will have a good sense of fitting the development of discipline actively and infiltrating to other related disciplines.

(二) 毕业要求

Graduation Requirements

- (1) 掌握文学、历史、哲学、艺术、社会科学的基本知识，具备较好的人文素养。

Students should master fundamental knowledge of literature, history, philosophy, art and social science, and have good humanistic quality.

- (2) 掌握本专业自然科学与工程技术的基础知识和前沿知识，具备科学素养和工程意识；

Students should master basic knowledge and frontier knowledge of ship and ocean engineering, and have good scientific quality and engineering consciousness.

- (3) 掌握本专业所需的数学、物理、力学、计算机等相关学科的基本理论、基本知识和基本技能和相关实验方法；

Students should grasp fundamental theories, knowledge, skills and experimental method of mathematics, physics, mechanics, and computer and so on that needed for ship and ocean engineering.

- (4) 掌握本专业从业应具备的船舶与海洋结构物的计算分析、设计、制造和管理所需的知识和技能；掌握船舶与海洋工程实验的基本方法、学会使用实验仪器和设备，能够进行数据采集、处理和分析；

Students should master knowledge and skills of calculation, analysis, design, manufacture and management for working in ship and ocean engineering, should grasp basic experimental methods of ship and ocean engineering, should learn to use experimental instruments and equipments, should know data gathering, data process and data analysis.

- (5) 与本专业相关的其它知识的学习。

Students should learn other knowledge that related to ship and ocean engineering.

- (6) 具有发现问题、分析问题和解决问题并准确表达的能力；

Students should have the abilities to find problems, analyze problems, and solve problems and to express them correctly.

- (7) 至少一种外语的应用能力，具有国际交流与合作的能力；具有与不同类型的人合作共事能力和组织能力。

Students should have at least one foreign language application ability, have international

communication and cooperation ability, and have team work skills and organization skills.

- (8) 使学生具有自主学习新知识、批判性思考和创新的能力；

Students should have the abilities of self-learning, critical thinking and innovation.

- (9) 使学生了解船舶与海洋工程的工程决策对地球、社会、经济、环境的影响；

Students should know the effects of engineering policy decision of ship and ocean engineering on the earth, social, economy and environment.

- (10) 使学生具有船舶与海洋工程领域中应用数学、物理、力学等基础知识的能力；具有应用船舶与海洋工程设计、制造等专业知识的能力；具有产品设计与开发的能力；

Students should grasp abilities of applying fundamental knowledge of mathematics, physics and mechanics in ship and ocean engineering, have the abilities of applying professional knowledge of ship and ocean design and manufacture, and have the abilities of product design and development.

- (11) 能够使用专业实验设备和仪器开展实验及数据分析的能力；具备应用专业软件开展设计与分析的能力。

Students should have the abilities of using professional test equipments to do experiments and analyze data, should have the abilities of using professional software to design and analyze.

- (12) 具有良好的职业道德与社会公德, 和对本专业的责任心与使命感, 以传承文明、振兴中华为己任；

Students should have a good sense of professional ethics and social morality, have a sense of responsibility and mission for this major, and take the responsibility of culture inheritance and rejuvenation.

- (13) 具有良好的身体和心理素质；

Students should be sound in body and mind.

- (14) 具有对多元文化的包容心态和宽阔的国际化视野；

Students should be with an open mind on multicultural and have wide international horizon.

- (15) 勤于思考, 善于钻研, 勇于创新, 厚德博学, 追求卓越；

Students should think more, study diligently, be innovative, be with profound virtue, learn broadly and pursuit for excellence.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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					√

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
毕业要求 9	√				
毕业要求 10		√	√	√	
毕业要求 11		√	√	√	
毕业要求 12	√				
毕业要求 13	√				
毕业要求 14					√
毕业要求 15	√				√

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程:

专业核心课程: 船体构造与制图、船舶静力学、船舶阻力、船舶推进、船舶运动学、船舶结构力学、船体强度与结构设计、船舶设计原理、船舶建造工艺学。

Core Courses: Ship Structure and Graphing, Ship Statics, Ship Resistance, Ship Propulsion, Ship Kinematics, ship structural mechanics, Ship Intensity and Structure Design, Principles of Ship Design, Shipbuilding technology.

(二) 专业特色课程:

专业特色课程: 现代造船技术、船舶工程经济学、人机工程与船舶美学、海洋平台设计原理、跨海工程建养技术、救助与打捞。

Characteristic Courses: Modern Ship Manufacturing Mode, Ship Engineering Economics, Ergonomic principles and Ship Aesthetics, Ocean Platform Design Principle, Construction Technology of Cross-ocean Projects, Rescue and Salvage Technology.

附: 毕业要求实现矩阵:

专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		思想道德修养与法律基础 Morals, Ethics and Fundamentals	√											√			
		中国近现代史纲要 Outline of Contemporary and Modern	√														
		毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism	√							√				√			
		马克思主义基本原理 Marxism Philosophy	√							√							
		军事理论 Military Theory	√											√			
		心理健康教育 Mental Health Education													√		
		大学计算机基础 Foundation of Computer		√	√												
		体育 1 Physical Education I													√		

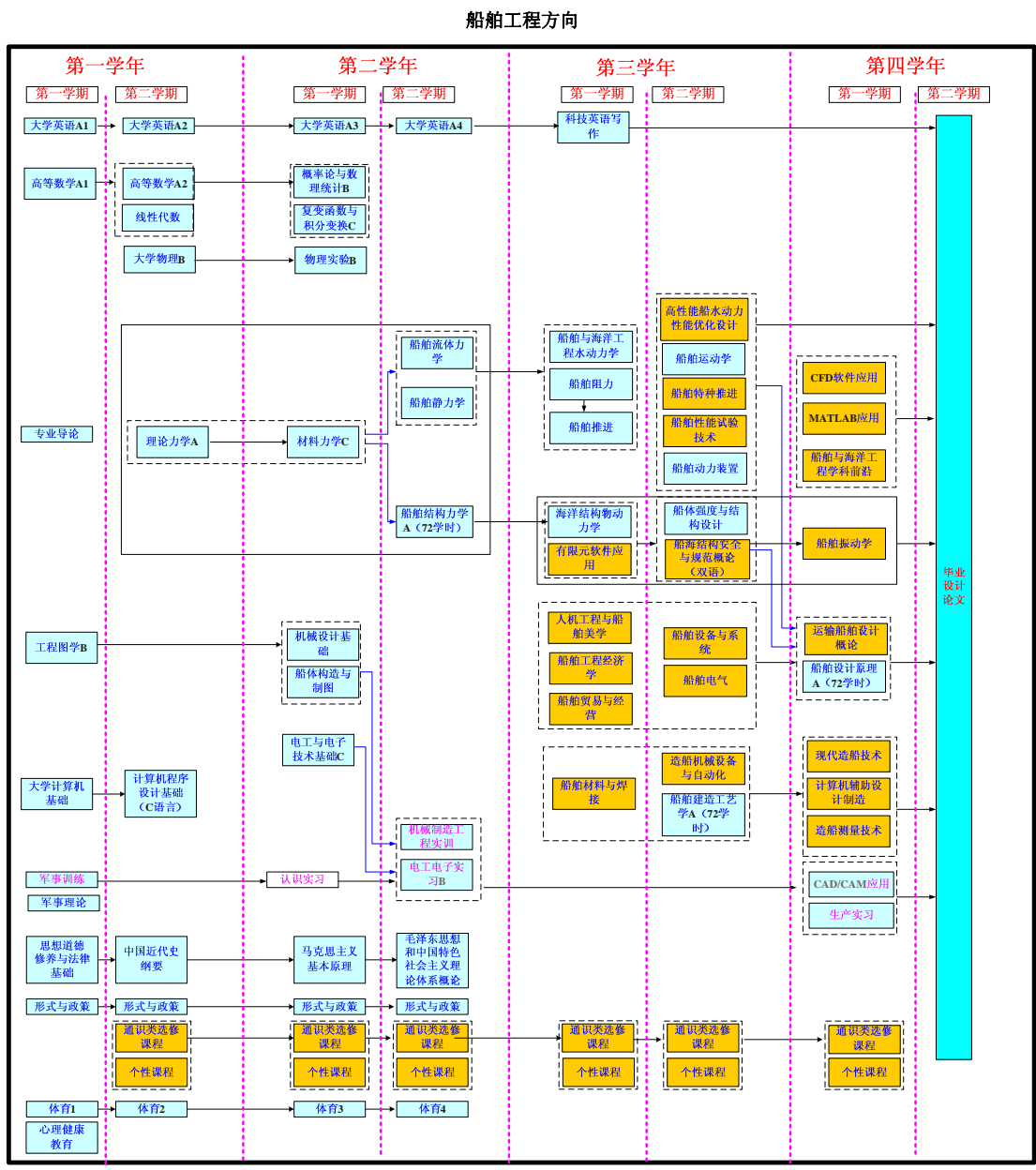
专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		体育 2 Physical Education II													√		
		体育 3 Physical Education III													√		
		体育 4 Physical Education IV													√		
		大学英语 A1 College English A I	√						√							√	
		大学英语 A2 College English A II	√						√							√	
		大学英语 A3 College English A III	√						√							√	
		大学英语 A4 College English A IV	√						√							√	
		程序设计语言课程 Courses of Computer Program Design			√												
		创新创业类 Innovation and Entrepreneurship Courses						√		√							√
		人文社科类 Arts and Social Science Courses	√														
		经济管理类 Economy and Management Courses				√											
		科学技术类 Science and Technology Courses		√													√
		艺术体育类 Art and Physical Education Courses	√												√		
		专业导论 Introduction to the Program	√								√						
		工程图学 B Engineering Graphics B		√				√									
		高等数学 A 上 Advanced Mathematics A1			√							√					
		高等数学 A 下 Advanced Mathematics A2			√							√					
		线性代数 Linear Algebra			√							√					
		大学物理 B Physics B			√							√					
		物理实验 B Physics Lab. B			√								√				
		理论力学 A Theoretical Mechanics A			√							√					
		概率论与数理统计 B Probability and Mathematical Statistics B			√							√					

专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric		√	√							√					
		材料力学 Materials Mechanics			√							√					
		复变函数与积分变换 C Complex Function & Integral Transformation C			√							√					
		机械设计基础 Fundamentals of Mechanical Design		√		√	√	√		√		√		√			√
√		船体构造与制图 Ship Structure and Graphing		√		√		√		√		√		√			√
		船舶流体力学 Ship Fluid Mechanics		√	√	√		√		√	√	√		√			√
√		船舶结构力学 A Ship Structural Mechanics A		√	√	√		√		√		√		√			√
√		船舶静力学 Ship Statics		√	√	√		√		√		√	√	√			√
		船舶与海洋工程水动力学 Hydrodynamics of Ocean Engineering		√	√	√		√		√		√		√			√
		海洋结构物动力学 Offshore Structure Dynamics		√	√	√		√		√		√		√			√
√		船舶阻力 Ship Resistance		√	√	√		√		√		√		√			√
√		船舶推进 Ship Propulsion		√	√	√		√		√		√		√			√
		科技英语写作 Scientific Documents Writing in English							√					√		√	√
√		船舶运动学 Ship Maneuverability and Seakeeping		√	√	√		√		√		√		√			√
√		船体强度与结构设计 Ship Intensity and Structure Design		√	√	√		√		√		√		√			√
		船舶动力装置 Ship Power Equipment		√		√		√		√		√		√			√
√		船舶建造工艺 Ship Building Technology		√	√	√		√		√		√		√			√
√		船舶设计原理 Principles of Ship Design		√	√	√		√		√		√		√			√
	√	人机工程与船舶美学 Ship Aesthetics	√			√					√	√		√			√
		船舶材料与焊接 Ship Materials and Welding		√		√		√		√		√		√			√

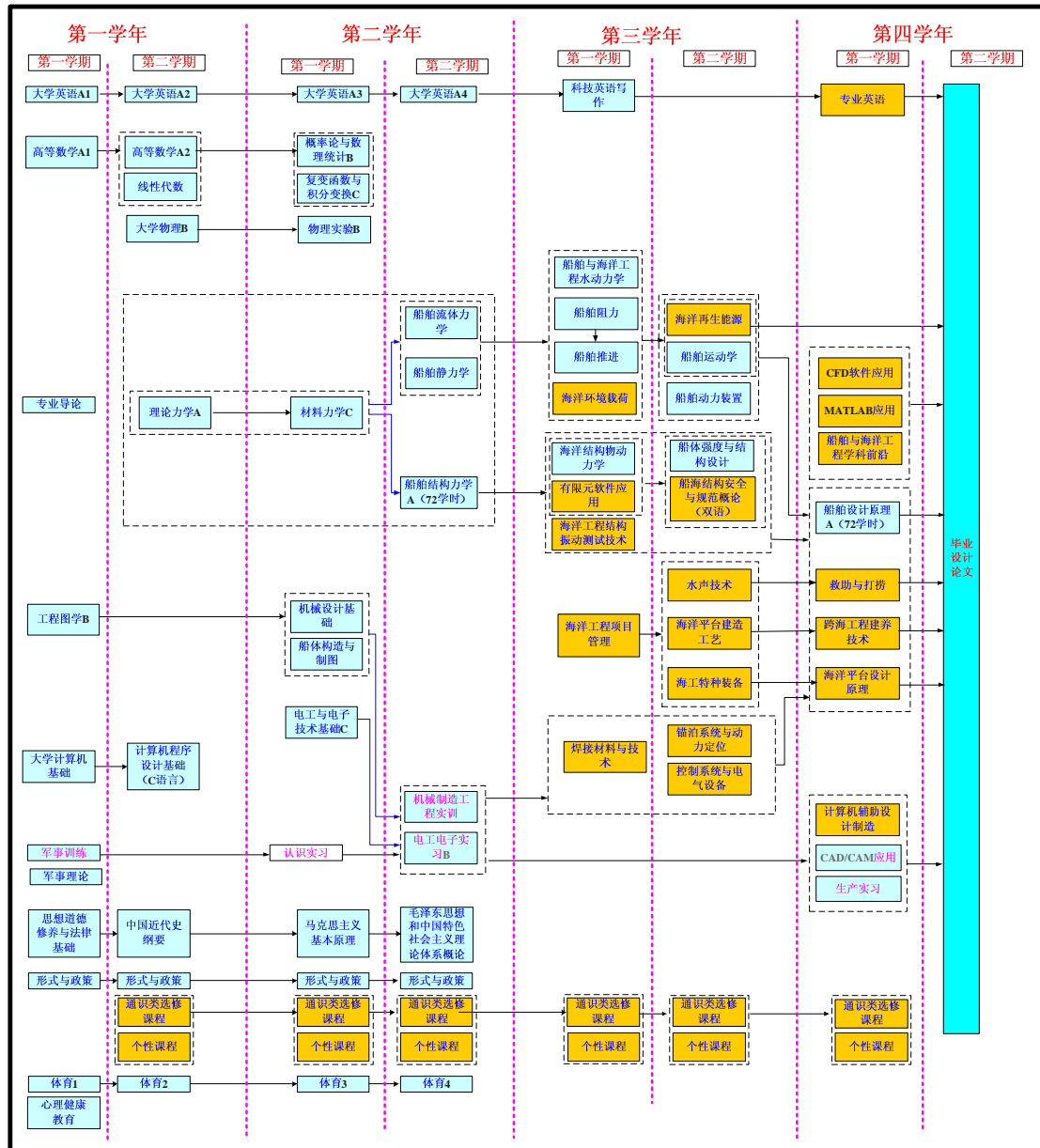
专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	√	船舶工程经济学 Ship Engineering Economics		√		√					√			√			√
		船舶贸易与经营 Ship Trade and Business				√	√				√			√			√
		有限元软件应用 FEA Software Application				√						√	√	√			√
		船舶特种推进 Unconventional Marine Propulsion				√						√		√			√
		高性能船水动力性能优化设计 Hydrodynamic Optimal Design of High Performance Ship		√		√						√		√			√
		船舶设备与系统 Ship Equipment and Systems		√		√						√		√			√
		船舶电气 Ship Electrical Equipment				√						√		√			√
		造船机械设备与自动化 Shipbuilding Equipment and				√						√		√			√
		船舶性能试验技术 Experimental Technology of Ship			√	√		√				√	√	√			√
		运输船舶设计概论 Introduction to Transport Ship Design		√		√		√			√	√		√			√
		造船测量技术 Shipbuilding Measurement Technology			√	√						√	√	√			√
		计算机辅助设计制造 Computer Aided Ship Design		√	√	√		√				√	√	√			√
		船舶振动学 Ship Vibrations			√	√						√		√			√
	√	现代造船技术 Modern Ship Manufacturing Technology		√		√		√			√	√		√			√
		船舶与海洋工程学科前沿 Frontier of Ship and Ocean Engineering		√				√		√	√			√		√	√
		Matlab 应用 MATLAB Application				√	√						√	√			√
		CFD 软件应用 CFD Software Application				√						√	√	√			√
		海洋工程项目管理 Ocean Engineering Project Management		√		√		√			√			√			√
		海洋环境载荷 Ocean Environment Loads			√	√		√		√		√		√			√
		海洋工程结构振动测试技术 Testing Technology of Structural Vibration			√	√							√	√			√
		水声技术 Underwater Acoustic Technology		√	√	√						√		√			√

专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	√	救助与打捞 Rescue and Salvage Technology		√	√	√						√		√			√
		海洋平台建造工艺 Construction Technique of Ocean Platform		√	√	√		√		√		√		√			√
	√	海洋平台设计原理 Ocean Platform Design		√	√	√		√		√		√		√			√
		海工特种装备 Special Equipment of Ocean Engineering		√		√					√	√		√			√
	√	跨海工程建养技术 Construction Technology of Cross-ocean Projects		√		√					√	√		√			√
		控制系统与电气设备 Control System and Electrical Equipment		√		√	√					√		√			√
		锚泊系统与动力定位 Mooring System and Dynamic Positioning		√		√	√					√		√			√
		海洋再生能源 Ocean Renewable Energy		√		√	√				√	√		√			√
		船海结构安全与规范概论 Introduction of Safety and Standardization of Ship and		√		√					√	√		√			√
		个性课程 Personalized Course	√	√			√		√					√	√	√	√
		军事训练 Military Training							√					√	√		
		认识实习 Practice of Understanding	√	√			√			√				√		√	√
		电工电子实习 B Practice of Electrical Engineering & Electronics B			√			√						√			√
		机械制造工程实训 C Practice of Mechanical Manufacturing Engineering C			√			√						√			√
		CAD/CAM 应用 CAD/CAM Application		√	√	√						√	√	√			√
		生产实习（含虚拟实习） Practice of Production		√		√	√	√			√	√		√		√	√
		毕业设计 Graduation Design				√		√	√	√		√		√		√	√

三、课程教学进程图
III Teaching Process Map



海洋工程方向



四、理论教学建议进程表
IV Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
通 识 课 程 Public Basic Courses	必修课程 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		错误!未找到引		
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003131	军事理论 Military Theory	1	32			16		2-4		
		1050001131	心理健康教育 Mental Health Education	1	16					1		
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1		
		4210001111	体育 1 Physical Education I	1	32					1		
		4210002111	体育 2 Physical Education II	1	32					2	体育 1	
		4210003111	体育 3 Physical Education III	1	32					3	体育 2	
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3	
		4030002111	大学英语 A1 College English A I	3	64				16	1		
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1	
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2	
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3	
		程序设计语言课程组(三选一, 3 学分) Courses of Computer Program Design (select one out of three, Credits: 3)										
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
		4120024111	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2		
		4120025111	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48		12			2		
		小 计 Subtotal		35	736		24	64	64			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses		全校学生要求至少取得 9 个学分，且必须选修艺术体育类课程中的艺术类相关课程，取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程，其他专业学生至少选修一门科学技术类课程。 All students are required to obtain at least 9 credits, and must select art courses from <i>Art and Physical Education Courses</i> to obtain at least 2 credits. Science and engineering students should select at least one course from <i>Arts and Social Science Courses</i> or <i>Economy and Management Courses</i> , and other students should select at least one course from <i>Science and Technology Courses</i> .								
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学 科 大 类 课 程 Basic Disciplinary Courses	必修课 Required Courses	4140160111	专业导论 Introduction to the Program	1	16					1		*
		4180017111	工程图学 B Engineering Graphics B	4	64		4			1		*
		4050063111	高等数学 A 上 Advanced Mathematics A1	5	80					1		
		4050064111	高等数学 A 下 Advanced Mathematics A2	5	80					2		
		4050229111	线性代数 Linear Algebra	2.5	40					2		
		4140125111	理论力学 A Theoretical Mechanics A	4.5	72					2		*
		4050463131	大学物理 Physics	5	80					2		
		4050224111	物理实验 B Physics Lab. B	1	32	32				3		
		4050058111	概率论与数理统计 B Probability and Mathematical Statistics B	3	48					3		
		4100012111	电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C	4	64	10				3		
		材料力学课程组(至少取得 4 学分) Course Group of Materials Mechanics(At least 4 credits are Required)										
		4140004111	材料力学 C Materials Mechanics C	4	64	4				3		*
		4140002111	材料力学 A Materials Mechanics A	5	80	8				3		
		小 计 Subtotal			39	640	46	4				
专 业 课 程 Specialized Courses	必修课 Required Courses	4050053111	复变函数与积分变换 C Complex Function & Integral Transformation	2	32					3		
		4180031111	机械设计基础 Fundamentals of Mechanical Design	3.5	56	6				3		
		4140359131	船体构造与制图 Ship Structure and Graphing	4	64					3		*
		4140436131	船舶流体力学 Ship Fluid Mechanics	4	64	6				4		
		4140017111	船舶结构力学 A Ship Structural Mechanics A	4	64					4		
		4140437131	船舶静力学 Ship Statics	3.5	56			16		4		*

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140268121	船舶与海洋工程水动力学 Hydrodynamics of Ocean Engineering	3.5	56					5		
		4140288121	海洋结构物动力学 Offshore Structure Dynamics	2	32					5		
		4140037111	船舶阻力 Ship Resistance	2.5	40					5		*
		4140266121	船舶推进 Ship Propulsion	4	64			16		5		*
		4030062111	科技英语写作 Scientific Documents Writing in English	1	16					5		
		4140035111	船舶运动学 Ship Maneuverability and Seakeeping	3	48					6		*
		4140438131	船体强度与结构设计 Ship Intensity and Structure Design	4.5	72	4		16		6		*
		4150014111	船舶动力装置 Ship Power Equipment	2	32					6		
		4140439131	船舶建造工艺 Ship Building Technology	4.5	72	4		16		6		*
		4140440131	船舶设计原理 Principles of Ship Design	4.5	72			16		7		*
		小 计 Subtotal		52.5	840	20		80				30.5
	选修课 Elective Courses	船舶工程方向										
		4140441131	人机工程与船舶美学 Ship Aesthetics	2	32					5		
		4140011111	船舶材料与焊接 Ship Materials and Welding	2	32					5		
		4140442131	船舶工程经济学 Ship Engineering Economics	2	32					5		
		4140365131	船舶贸易与经营 Ship Trade and Business	2	32					5		
		4140422131	有限元软件应用 FEA Software Application	2	32					5		
		4140367131	船舶特种推进 Unconventional Marine Propulsion	2	32					6		
		4140063111	高性能船水动力性能优化设计 Hydrodynamic Optimal Design of High Performance Ship	2	32					6		
		4140022111	船舶设备与系统 Ship Equipment and Systems	2	32					6		
		4100005111	船舶电气 Ship Electrical Equipment	2	32					6		
		4140408131	造船机械设备与自动化 Shipbuilding Equipment and Automation	2	32	2				6		
		4140026111	船舶性能试验技术 Experimental Technology of Ship Performance	2	32					6		
		4140455131	船海结构安全与规范概论 Introduction of Safety and Standardization of Ship and Ocean	2	32					6		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140151111	运输船舶设计概论 Introduction to Transport Ship Design	2	32					7		
		4140156111	造船测量技术 Shipbuilding Measurement Technology	2	32	2				7		
		4140093111	计算机辅助设计制造 Computer Aided Ship Design	3	48					7		
		4140036111	船舶振动学 Ship Vibrations	2	32					7		
		4140148111	现代造船技术 Modern Ship Manufacturing Technology	2	32					7		
		4140029111	船舶与海洋工程学科前沿 Frontier of Ship and Ocean Engineering	1	16					7		
		4140443131	Matlab 应用 MATLAB Application	2	32					7		
		4140444131	CFD 软件应用 CFD Software Application	2	32					7		
		小 计 Subtotal		40	640	4						
		修读说明：要求至少选修 13 学分。 NOTE: Minimum subtotal credits: 13.										
		海洋工程方向										
		4140446131	海洋工程项目管理 Ocean Engineering Project Management	2	32					5		
		4140447131	海洋环境载荷 Ocean Environment Loads	2	32					5		
		4140287121	海洋工程结构振动测试技术 Testing Technology of Structural Vibration	2	32					5		
		4140422131	有限元软件应用 FEA Software Application	2	32					5		
		4140482141	焊接材料与技术 Welding Materials and Technology	2	32					5		
		4140450131	水声技术 Underwater Acoustic Technology	2	32					6		模块一： 救助打捞
		4140451131	救助打捞 Rescue and Salvage Technology	2	32					7		
		4140088111	海洋平台建造工艺 Construction Technique of Ocean Platform	2	32					6		模块二： 海工装备
		4140089111	海洋平台设计原理 Ocean Platform Design	2	32					7		
		4140453131	海工特种装备 Special Equipment of Ocean Engineering	2	32					6		模块三： 建养
		4140452131	跨海工程建养技术 Construction Technology of Cross-ocean Projects	2	32					7		
		4140448131	控制系统与电气设备 Control System and Electrical Equipment	2	32					6		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140455131	船海结构安全与规范概论 Introduction of Safety and Standardization of Ship and Ocean	2	32					6		
		4140449131	锚泊系统与动力定位 Mooring System and Dynamic Positioning	2	32					6		
		4140445131	海洋再生能源 Ocean Renewable Energy	2	32					6		
		4140029111	船舶与海洋工程学科前沿 Frontier of Ship and Ocean Engineering	1	16					7		
		4140443131	Matlab 应用 MATLAB Application	2	32					7		
		4140444131	CFD 软件应用 CFD Software Application	2	32					7		
		4140454131	计算机辅助设计制造 Computer Aided Ship Design	3	48					7		
		4140481141	专业英语 Professional English	2	32					7		
		小 计 Subtotal		40	640							
		修读说明：要求至少选修 13 学分。建议海洋工程方向按照模块选修一组。 NOTE: Minimum subtotal credits: 13. Only one group is required among three modules for students of ocean engineering.										
个性课程 Personalized Course	选修课 Elective Courses	4140455131	船海结构安全与规范概论 Introduction of Safety and Standardization of Ship and Ocean	2	32					6		
		小 计 Subtotal										
		修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE: Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.										

五、集中性实践教学环节建议进程表

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Credits	建议修读学期 Suggested Term	第二专业 Second major
1060002111	军事训练 Military Training	3	1.5	1	
4140225111	认识实习 Practice of Understanding	1	1	3	
4100069111	电工电子实习 B Practice of Electrical Engineering & Electronics B	1	1	4	
4180114111	机械制造工程实训 C Practice of Mechanical Manufacturing Engineering C	2	2	4	
4140170111	CAD/CAM 应用 CAD/CAM Application	2	2	7(分散)	
4140238111	生产实习 (含虚拟实习) Practice of Production	3	3	7	

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Credits	建议修读学期 Suggested Term	第二专业 Second major
4140335121	毕业设计 Graduation Design	17	11	8	*
小 计 Subtotal		29	21.5		10

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。通识教育选修课中要求选修《中国造船史》。

The course of *Situation & Policy*, 16 hours per term with 2 credits, is taught according to specific topics and tested at the end of the 7th term. The course will be arranged by the University's Student Development Instruction Center. The courses of science and technology culture in the category of cultural quality education courses actually include the course of *China's Shipbuilding History*.

学院教学责任人：王丽铮
专业培养方案责任人：丁江明

【船舶与海洋工程专业（学硕班）】2014 版本本科培养方案

Undergraduate Education Plan for Specialty in Ship and Ocean Engineering (Bachelor+Master Class) (2014)

专业名称	船舶与海洋工程学	主干学科	船舶与海洋工程
Major	Ship and Ocean Engineering	Major Disciplines	Ship and Ocean Engineering
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of Engineering
所属大类	海洋工程类	大类培养年限	1 年
Disciplinary	Ocean Engineering	Duration	1 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	39	54.5	\	28.5	\	190
选修课 Elective Courses	9	\	14	\	\	10	

一、培养目标与毕业要求

I Educational Objectives & Requirement

（一）培养目标

Educational Objectives

- (1) 身心健康，具备良好的敬业精神、社会责任感和工程职业道德，关注当代全球和社会问题，具有质量意识、环境意识和安全意识。

Students will be healthy physically and mentally, will possess a high level of professionalism, have a good sense of social responsibility, and have a good professional ethics, will focus on global problems and social issues, will have sense for quality, environment and safety.

- (2) 具有从事船舶与海洋工程领域科学研究、工程设计、技术服务和管理等工作所需的较扎实的数学、力学等基础知识以及船舶与海洋工程专业知识。

Students will master solid basic knowledge of mathematics, mechanics et.al and professional knowledge of ship and ocean engineering that needed for jobs in ship and ocean engineering field, such as scientific research, engineering design, technical service and management and so on.

- (3) 具有综合运用所学知识解决船舶与海洋工程设计与建造实际问题的较强能力，具备从事本学科领域科学研究的基础与初步经验。

Students will have strong capabilities to solve problems that will happen in the process of design and construction for ship and ocean engineering using the learned knowledge comprehensively, and will have the basis and preliminary experience for scientific research on ship and ocean engineering.

- (4) 熟练掌握船舶与海洋工程相关研发、设计、制造过程所需的软硬件技术。

Students will master software and hardware technologies that needed in the process of R&D, design,

manufacture for ship and ocean engineering.

- (5) 具有良好的表达能力和沟通能力, 具有良好的团队意识和合作精神, 具有创新求实精神, 具有国际视野和跨文化交流能力, 具有主动适应学科发展和渗入其他学科领域的意识。

Students will be with good communication skill and expression skill, will have good team work spirit, will have creative way of thinking and realistic spirit, will have international vision and inter-culture communication ability, will have a good sense of fitting the development of discipline actively and infiltrating to other related disciplines.

(二) 毕业要求

Graduation Requirements

知识 Knowledge

- (1) 掌握文学、历史、哲学、艺术、社会科学的基本知识, 具备较好的人文素养。

Students should master fundamental knowledge of literature, history, philosophy, art and social science, and have good humanistic quality.

- (2) 掌握本专业自然科学与工程技术的的基础知识和前沿知识, 具备科学素养和工程意识;

Students should master basic knowledge and frontier knowledge of ship and ocean engineering, and have good scientific quality and engineering consciousness.

- (3) 扎实地掌握本专业所需的数学、物理、力学、计算机等相关学科的基本理论、基本知识和基本技能和相关实验方法;

Students should grasp solid fundamental theories, knowledge, skills and experimental method of mathematics, physics, mechanics, and computer and so on that needed for ship and ocean engineering.

- (4) 扎实地掌握本专业从业应具备的船舶与海洋结构物的计算分析、设计、制造和管理所需的知识和技能; 掌握船舶与海洋工程实验的基本方法、学会使用实验仪器和设备, 能够进行数据采集、处理和分析;

Students should master solid knowledge and skills of calculation, analysis, design, manufacture and management for working in ship and ocean engineering, should grasp basic experimental methods of ship and ocean engineering, should learn to use experimental instruments and equipments, should know data gathering, data process and data analysis.

- (5) 与本专业相关的其它知识的学习。

Students should learn other knowledge that related to ship and ocean engineering.

能力 Abilities

- (6) 具有发现问题、分析问题和解决问题并准确表达的能力;

Students should have the abilities to find problems, analyze problems, and solve problems and to express them correctly.

- (7) 至少一种外语的应用能力, 具有国际交流与合作的能力; 具有与不同类型的人合作共事能力和组织能力。

Students should have at least one foreign language application ability, have international

communication and cooperation ability, and have team work skills and organization skills.

- (8) 使学生具有自主学习新知识、批判性思考和创新的能力;

Students should have the abilities of self-learning, critical thinking and innovation.

- (9) 使学生了解船舶与海洋工程的工程决策对地球、社会、经济、环境的影响;

Students should know the effects of engineering policy decision of ship and ocean engineering on the earth, social, economy and environment.

- (10) 使学生具有船舶与海洋工程领域中应用数学、物理、力学等基础知识的较强能力; 具有应用船舶与海洋工程设计、制造等专业知识的较强能力; 具有产品设计与开发的较强能力; 具有从事科学研究的初步能力。

Students should grasp strong abilities of applying fundamental knowledge of mathematics, physics and mechanics in ship and ocean engineering, have strong abilities of applying professional knowledge of ship and ocean design and manufacture, have strong abilities of product design and development, and have the preliminary ability for working on scientific research.

- (11) 能够使用专业实验设备和仪器开展实验及数据分析的能力; 具备应用专业软件开展设计与分析的能力。

Students should have the abilities of using professional test equipments to do experiments and analyze data, should have the abilities of using professional software to design and analyze.

素质 Qualities

- (12) 具有良好的职业道德与社会公德, 和对本专业的责任心与使命感, 以传承文明、振兴中华为己任; Students should have a good sense of professional ethics and social morality, have a sense of responsibility and mission for this major, and take the responsibility of culture inheritance and rejuvenation.

- (13) 具有良好的身体和心理素质;

Students should be sound in body and mind.

- (14) 具有对多元文化的包容心态和宽阔的国际化视野;

Students should be with an open mind on multicultural and have wide international horizon.

- (15) 勤于思考, 善于钻研, 勇于创新, 厚德博学, 追求卓越;

Students should think more, study diligently, be innovative, be with profound virtue, learn broadly and pursuit for excellence.

附: 培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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			√		

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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	√				
毕业要求 13	√				
毕业要求 14					√
毕业要求 15	√				√

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程:

专业核心课程: 船体构造与制图、船舶静力学、船舶阻力、船舶推进、船舶运动学、船舶结构力学、船体强度与结构设计、船舶设计原理、船舶建造工艺学。

Core Courses: Ship Structure and Graphing, Ship Statics, Ship Resistance, Ship Propulsion, Ship Kinematics, ship structural mechanics, Ship Intensity and Structure Design, Principles of Ship Design, Shipbuilding technology.

(二) 专业特色课程:

专业特色课程: 现代造船技术、船舶工程经济学、人机工程与船舶美学、船海结构安全与规范概论。
Characteristic Courses: Modern Ship Manufacturing Mode, Ship Engineering Economics, Ergonomic principles and Ship Aesthetics, Introduction of Marine Structural Safety and regulations.

附: 毕业要求实现矩阵:

专业核 心课程	专业特 色课程	课程名称	船舶与海洋工程专业(学硕班)毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	√											√			
		中国近现代史纲要 Outline of Contemporary and Modern Chinese History	√														
		毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	√							√				√			
		马克思主义基本原理 Marxism Philosophy	√							√							
		军事理论 Military Theory	√											√			
		心理健康教育 Mental Health Education													√		
		大学计算机基础 Foundation of Computer		√	√												
		体育 1 Physical Education I													√		
		体育 2 Physical Education II													√		

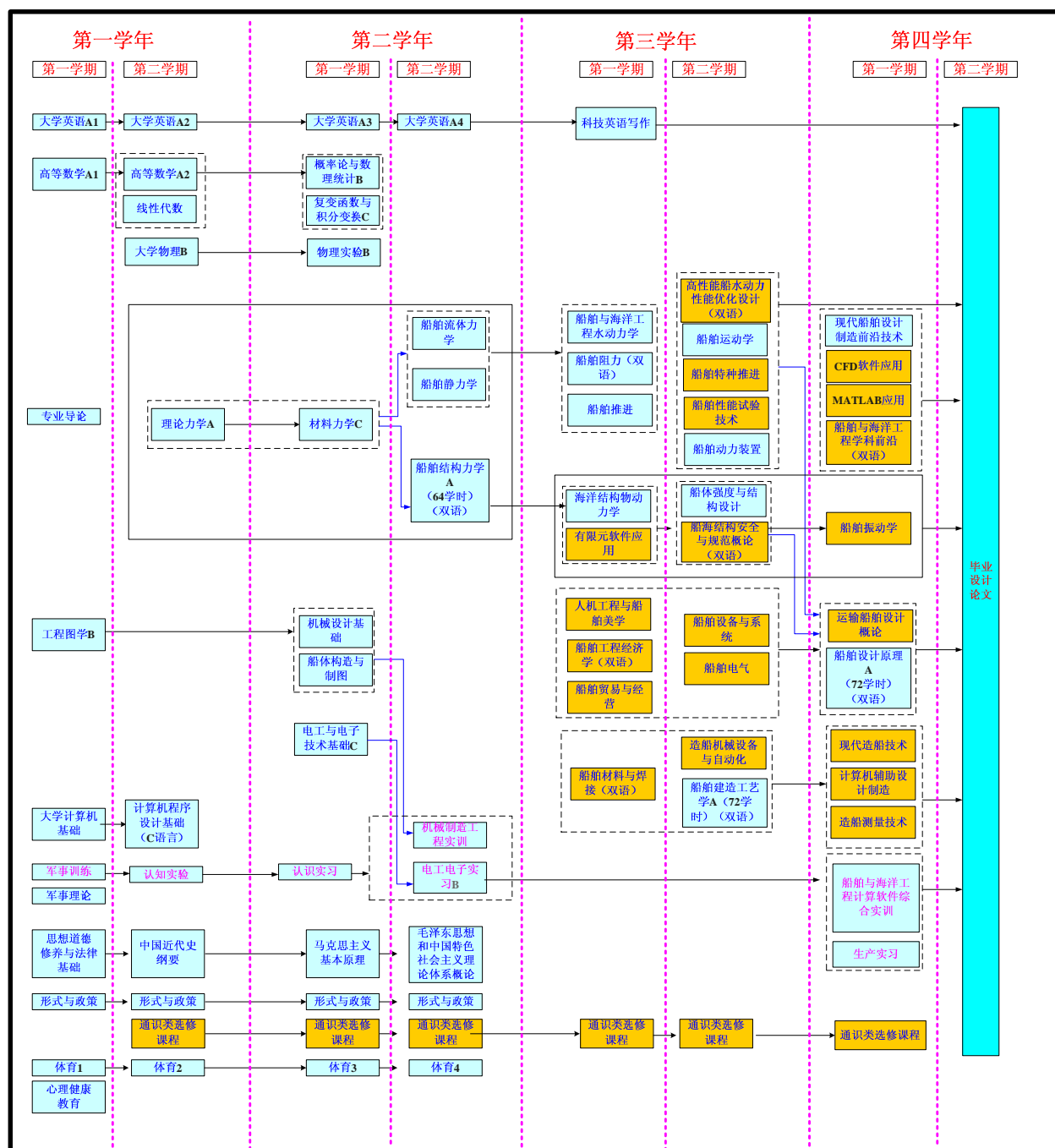
专业核 心课程	专业特 色课程	课程名称	船舶与海洋工程专业（学硕班）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		体育 3 Physical Education III													√		
		体育 4 Physical Education IV													√		
		大学英语 A1 College English A 1	√						√							√	
		大学英语 A2 College English A II	√						√							√	
		大学英语 A3 College English A III	√						√							√	
		大学英语 A4 College English A IV	√						√							√	
		程序设计语言课程 Courses of Computer Program Design			√												
		创新创业类 Innovation and Entrepreneurship Courses						√									√
		人文社科类 Arts and Social Science Courses	√														
		经济管理类 Economy and Management Courses				√											
		科学技术类 Science and Technology Courses		√													√
		艺术体育类 Art and Physical Education Courses	√												√		
		专业导论 Introduction to the Program	√								√						
		工程图学 B Engineering Graphics B		√				√									
		高等数学 A 上 Advanced Mathematics A1			√							√					
		高等数学 A 下 Advanced Mathematics A2			√							√					
		线性代数 Linear Algebra			√							√					
		大学物理 B Physics B			√							√					
		物理实验 B Physics Lab. B			√								√				
		理论力学 A Theoretical Mechanics A			√							√					
		概率论与数理统计 B Probability and Mathematical Statistics B			√							√					
		电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C		√	√							√					
		材料力学 Materials Mechanics			√							√					
		复变函数与积分变换 C Complex Function & Integral Transformation C			√							√					
		机械设计基础 Fundamentals of Mechanical Design		√		√	√			√		√		√			√

专业核 心课程	专业特 色课程	课程名称	船舶与海洋工程专业（学硕班）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
√		船体构造与制图 Ship Structure and Graphing		√		√		√		√		√		√			√
		船舶流体力学 Ship Fluid Mechanics		√	√	√		√		√	√	√		√			√
√		船舶结构力学 A Ship Structural Mechanics A		√	√	√		√	√	√		√		√			√
√		船舶静力学 Ship Statics		√	√	√		√		√		√	√	√			√
		船舶与海洋工程水动力学 Hydrodynamics of Ocean Engineering		√	√	√		√		√		√		√			√
		海洋结构物动力学 Offshore Structure Dynamics		√	√	√		√		√		√		√			√
√		船舶阻力 Ship Resistance		√	√	√		√	√	√		√		√			√
√		船舶推进 Ship Propulsion		√	√	√		√		√		√		√			√
		科技英语写作 Scientific Documents Writing in English							√					√		√	√
√		船舶运动学 Ship Maneuverability and Seakeeping		√	√	√		√		√		√		√			√
√		船体强度与结构设计 Ship Intensity and Structure Design		√	√	√		√		√		√		√			√
		船舶动力装置 Ship Power Equipment		√		√		√		√		√		√			√
√		船舶建造工艺学 Ship Building Technology		√	√	√		√	√	√		√		√			√
√		船舶设计原理 Principles of Ship Design		√	√	√		√	√	√		√		√			√
		现代船舶设计制造前沿技术 Frontier of Technology of Modern Ship		√		√				√		√		√			√
	√	人机工程与船舶美学 Ship Aesthetics	√			√					√	√		√			√
		船舶材料与焊接 Ship Materials and Welding		√		√		√	√	√		√		√			√
	√	船舶工程经济学 Ship Engineering Economics		√		√			√		√			√			√
		船舶贸易与经营 Ship Trade and Business				√	√				√			√			√
		有限元软件应用 FEA Software Application				√						√	√	√			√
		船舶特种推进 Unconventional Marine Propulsion				√						√		√			√
		高性能船水动力性能优化设计 Hydrodynamic Optimal Design of High Performance Ship		√		√						√		√			√
		船舶设备与系统 Ship Equipment and Systems		√		√						√		√			√
		船舶电气 Ship Electrical Equipment				√						√		√			√

专业核 心课程	专业特 色课程	课程名称	船舶与海洋工程专业（学硕班）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		造船机械设备与自动化 Shipbuilding Equipment and Automation				√						√		√			√
		船舶性能试验技术 Experimental Technology of Ship Performance			√	√		√				√	√	√			√
	√	船海结构安全与规范概论 Introduction of Marine Structural Safety and Regulations				√			√		√	√		√		√	√
		运输船舶设计概论 Introduction to Transport Ship Design		√		√		√			√	√		√			√
		造船测量技术 Shipbuilding Measurement Technology			√	√						√	√	√			√
		计算机辅助设计制造 Computer Aided Ship Design		√	√	√		√				√	√	√			√
		船舶振动学 Ship Vibrations			√	√						√		√			√
	√	现代造船技术 Modern Ship Manufacturing Technology		√		√		√			√	√		√			√
		船舶与海洋工程学科前沿 Frontier of Ship and Ocean Engineering		√				√	√	√	√			√		√	√
		Matlab 应用 MATLAB Application				√	√						√	√			√
		CFD 软件应用 CFD Software Application				√						√	√	√			√
		军事训练 Military Training							√					√	√		
		认知实验 Experiment on Recognition		√			√							√			√
		认识实习 Practice of Understanding	√	√			√			√				√		√	√
		电工电子实习 B Practice of Electrical Engineering & Electronics B			√			√						√			√
		机械制造工程实训 C Practice of Mechanical Manufacturing Engineering C			√			√						√			√
		船舶与海洋工程计算软件综合实训 Comprehensive Training on Ship and Ocean Engineering Calculation Software		√	√	√						√	√	√			√
		生产实习 Practice of Production		√		√	√	√			√	√		√		√	√
		毕业设计 Graduation Design				√		√	√	√		√		√		√	√

三、课程教学进程图

III Teaching Process Map



四、理论教学建议进程表
IV Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
通 识 课 程 Public Basic Courses	必修课程 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003131	军事理论 Military Theory	1	32			16		2-4		
		1050001131	心理健康教育 Mental Health Education	1	16					1		
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1		
		4210001111	体育 1 Physical Education I	1	32					1		
		4210002111	体育 2 Physical Education II	1	32					2	体育 1	
		4210003111	体育 3 Physical Education III	1	32					3	体育 2	
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3	
		4030002111	大学英语 A1 College English A 1	3	64				16	1		
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1	
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2	
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3	
		程序设计语言课程组(三选一, 3 学分) Courses of Computer Program Design (select one out of three, Credits: 3)										
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
		4120024111	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2		
		4120025111	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48		12			2		
		小 计 Subtotal		35	736		24	64	64			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实 践 Prac-tice	课外 Extra-cur			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses		全校学生要求至少取得 9 个学分，且必须选修艺术体育类课程中的艺术类相关课程，取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程，其他专业学生至少选修一门科学技术类课程。 All students are required to obtain at least 9 credits, and must select art courses from <i>Art and Physical Education Courses</i> to obtain at least 2 credits. Science and engineering students should select at least one course from <i>Arts and Social Science Courses</i> or <i>Economy and Management Courses</i> , and other students should select at least one course from <i>Science and Technology Courses</i> .								
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4140160111	专业导论 Introduction to the Program	1	16					1		
		4180017111	工程图学 B Engineering Graphics B	4	64		8			1		
		4050063111	高等数学 A 上 Advanced Mathematics A1	5	80					1		
		4050064111	高等数学 A 下 Advanced Mathematics A2	5	80					2		
		4050229111	线性代数 Linear Algebra	2.5	40					2		
		4140125111	理论力学 A Theoretical Mechanics A	4.5	72					2		
		4050463131	大学物理 Physics B	5	80					2		
		4050224111	物理实验 B Physics Lab. B	1	32	32				3		
		4050058111	概率论与数理统计 B Probability and Mathematical Statistics B	3	48					3		
		4100012111	电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C	4	64	10				3		
		材料力学课程组(至少取得 4 学分) Course Group of Materials Mechanics(At least 4 credits are Required)										
		4140004111	材料力学 C Materials Mechanics C	4	64	4				3		
		4140002111	材料力学 A Materials Mechanics A	5	80	8				3		
		小 计 Subtotal		39	632	46	8					
专业课程 Specialized Courses	必修课 Required Courses	4050053111	复变函数与积分变换 C Complex Function & Integral Transformation C	2	32					3		
		4180031111	机械设计基础 Fundamentals of Mechanical Design	3.5	56	6				3		
		4140359131	船体构造与制图 Ship Structure and Graphing	4	64					3		
		4140436131	船舶流体力学 Ship Fluid Mechanics	4	64	6				4		
		4140017111	船舶结构力学 A Ship Structural Mechanics A	4	64					4		
		4140264121	船舶静力学 Ship Statics	4	64	2		16		4		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140268121	船舶与海洋工程水动力学 Hydrodynamics of Ocean Engineering	3.5	56					5		
		4030062111	科技英语写作 Scientific Documents Writing in English	1	16					5		
		4140288121	海洋结构物动力学 Offshore Structure Dynamics	2	32					5		
		4140037111	船舶阻力 Ship Resistance	2.5	40	4				5		
		4140266121	船舶推进 Ship Propulsion	4	64	4		16		5		
		4140035111	船舶运动学 Ship Maneuverability and Seakeeping	3	48	4				6		
		4140323121	船体强度与结构设计 Ship Intensity and Structure Design	5	80	8		16		6		
		4150014111	船舶动力装置 Ship Power Equipment	2	32					6		
		4140439131	船舶建造工艺学 A Ship Building Technology	4.5	72	4		16		6		
		4140440131	船舶设计原理 A Principles of Ship Design A	4.5	72			16		7		
		4140168111	现代船舶设计制造前沿技术 Frontier of technology of modern ship design and construction	1	16					7		
		小 计 Subtotal		54.5	872	38		80				
	选修课 Elective Courses	4140441131	人机工程与船舶美学 Ship Aesthetics	2	32					5		
		4140011111	船舶材料与焊接 Ship Materials and Welding	2	32					5		
		4140442131	船舶工程经济学 Ship Engineering Economics	2	32					5		
		4140365131	船舶贸易与经营 Ship Trade and Business	2	32					5		
		4140422131	有限元软件应用 FEA Software Application	2	32					5		
		4140367131	船舶特种推进 Unconventional Marine Propulsion	2	32					6		
		4140063111	高性能船水动力性能优化设计 Hydrodynamic Optimal Design of High Performance Ship	2	32					6		
		4140022111	船舶设备与系统 Ship Equipment and Systems	2	32					6		
		4100005111	船舶电气 Ship Electrical Equipment	2	32					6		
		4140483141	船海结构安全与规范概论 Introduction of Safety and Standardization	2	32					6		
		4140408131	造船机械设备与自动化 Shipbuilding Equipment and Automation	2	32	2				6		
		4140026111	船舶性能试验技术 Experimental Technology of Ship Performance	2	32					6		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		414015111	运输船舶设计概论 Introduction to Transport Ship Design	2	32					7		
		414015611	造船测量技术 Shipbuilding Measurement Technology	2	32	2				7		
		414009311	计算机辅助设计制造 Computer Aided Ship Design	3	48					7		
		414003611	船舶振动学 Ship Vibrations	2	32					7		
		414014811	现代造船技术 Modern Ship Manufacturing Technology	2	32					7		
		414002911	船舶与海洋工程学科前沿 Frontier of Ship and Ocean Engineering	1	16					7		
		414036213	Matlab 应用 MATLAB Application	2	32					7		
		414036113	CFD 软件应用 CFD Software Application	2	32					7		
		小 计 Subtotal		40	640	4						
		修读说明：要求至少选修 14 学分。 NOTE: Minimum subtotal credits: 14.										

五、集中性实践教学环节建议进程表

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
106000211	军事训练 Military Training	3	1.5	1	
414023411	认知实验 Experiment on Recognition	1	1	2	
414022511	认识实习 Practice of Understanding	1	1	3	
410006911	电工电子实习 B Practice of Electrical Engineering & Electronics B	1	1	4	
418011411	机械制造工程实训 C Practice of Mechanical Manufacturing Engineering C	2	2	4	
414046013	船舶与海洋工程计算软件综合实训 Comprehensive Training on Ship and Ocean Engineering Calculation Software	8	8	7 (分散)	
414023811	生产实习 Practice of Production	3	3	7	
414033512	毕业设计 Graduation Design	17	11	8	
小 计 Subtotal		36	28.5		

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。通识教育选修课中要求选修《中国造船史》。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school. The courses of science and technology culture in the category of cultural quality education courses actually include the course of *China's Shipbuilding History*.

学院教学责任人：王丽铮
专业培养方案责任人：丁江明

【船舶与海洋工程专业（卓越班）】2014 版本本科培养方案

Undergraduate Education Plan for Specialty in Ship and Ocean Engineering (Excellent Engineer Class) (2014)

专业名称	船舶与海洋工程学	主干学科	船舶与海洋工程
Major	Ship and Ocean Engineering	Major Disciplines	Ship and Ocean Engineering
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of Engineering
所属大类	海洋工程类	大类培养年限	1 年
Disciplinary	Ocean Engineering	Duration	1 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	39	50	\	33.5	\	190
选修课 Elective Courses	9	\	13.5	\	\	10	

一、培养目标与毕业要求

I Educational Objectives & Requirement

（一）培养目标

- (1) 身心健康，具备良好的敬业精神、社会责任感和工程职业道德，关注当代全球和社会问题，具有质量意识、环境意识和安全意识。

Students will be healthy physically and mentally, will possess a high level of professionalism, have a good sense of social responsibility, and have a good professional ethics, will focus on global problems and social issues, will have sense for quality, environment and safety.

- (2) 具有从事船舶与海洋工程领域科学研究、工程设计、技术服务和管理等工作所需的较扎实的数学、力学等基础知识以及船舶与海洋工程专业知识。

Students will master solid basic knowledge of mathematics, mechanics et.al and professional knowledge of ship and ocean engineering that needed for jobs in ship and ocean engineering field, such as scientific research, engineering design, technical service and management and so on.

- (3) 具有综合运用所学知识解决船舶与海洋工程设计与建造实际问题的较强能力，具备成为船舶与海洋工程领域德才兼备的应用型卓越工程师的良好基础。

Students will have strong capabilities to solve problems that happened in the process of design and construction for ship and ocean engineering using the learned knowledge comprehensively, and will have good basis for being an excellent applicable engineering with sound virtue and ability in ship and ocean engineering.

- (4) 熟练掌握船舶与海洋工程相关研发、设计、制造过程所需的软硬件技术。

Students will master software and hardware technologies that needed in the process of R&D, design, manufacture for ship and ocean engineering.

- (5) 具有良好的表达能力和沟通能力, 具有良好的团队意识和合作精神, 具有创新求实精神, 具有国际视野和跨文化交流能力, 具有主动适应学科发展和渗入其他学科领域的意识。

Students will with good communication skill and expression skill, will have good team work spirit, will have creative way of thinking and realistic spirit, will have international vision and inter-culture communication ability, and will have a good sense of fitting the development of discipline actively and infiltrating to other related disciplines.

(二) 毕业要求 知识

Knowledge

- (1) 掌握文学、历史、哲学、艺术、社会科学的基本知识, 具备较好的人文素养。

Students should master fundamental knowledge of literature, history, philosophy, art and social science, and have good humanistic quality.

- (2) 掌握本专业自然科学与工程技术的基础知识和前沿知识, 具备科学素养和工程意识;

Students should master basic knowledge and frontier knowledge of ship and ocean engineering, and have good scientific quality and engineering consciousness.

- (3) 掌握本专业所需的数学、物理、力学、计算机等相关学科的基本理论、基本知识和基本技能和相关实验方法;

Students should grasp fundamental theories, knowledge, skills and experimental method of mathematics, physics, mechanics, and computer and so on that needed for ship and ocean engineering.

- (4) 掌握本专业从业应具备的船舶与海洋结构物的计算分析、设计、制造和管理所需的知识和技能; 掌握船舶与海洋工程实验的基本方法、学会使用实验仪器和设备, 能够进行数据采集、处理和分析;

Students should master knowledge and skills of calculation, analysis, design, manufacture and management for working in ship and ocean engineering, should grasp basic experimental methods of ship and ocean engineering, should learn to use experimental instruments and equipments, know data gathering, data process and data analysis.

- (5) 与本专业相关的其它知识的学习。

Students should learn other knowledge that related to ship and ocean engineering.

能力

Abilities

- (6) 具有发现问题、分析问题和解决问题并准确表达的能力;

Students should have the abilities to find problems, analyze problems, and solve problems and to express them correctly.

- (7) 至少一种外语的应用能力, 具有国际交流与合作的能力; 具有与不同类型的人合作共事能力和

组织能力。

Students should have at least one foreign language application ability, have international communication and cooperation ability, have team work skills and organization skills.

- (8) 使学生具有自主学习新知识、批判性思考和创新的能力；

Students should have the abilities of self-learning, critical thinking and innovation.

- (9) 了解船舶与海洋工程的工程决策对地球、社会、经济、环境、健康、伦理等因素的影响，并能在设计过程中能够恰当体现这些影响因素。

Students should know the effects of engineering policy decision of ship and ocean engineering on the earth, social, economy, environment, health and ethics, and can reflect these effects in the process of design.

- (10) 使学生具有船舶与海洋工程领域中应用数学、物理、力学等基础知识的能力；具有应用船舶与海洋工程设计、制造等专业知识的能力；具有系统的工程实践学习经历，具备设计和实施工程实验的能力；

Students should have abilities of applying fundamental knowledge of mathematics, physics and mechanics in ship and ocean engineering, have the abilities of applying professional knowledge of ship and ocean design and manufacture, they should have learning experience of systematic engineering practice, and have the abilities of design and implementing engineering experience.

- (11) 能够使用专业实验设备和仪器开展实验及数据分析的能力；具备应用专业软件开展设计与分析的能力。

Students should have the abilities of using professional test equipments to do experiments and analyze data, should have the abilities of using professional software to design and analyze.

素质

Qualities

- (12) 具有良好的职业道德与社会公德，和对本专业的责任心与使命感，以传承文明、振兴中华为己任；

Students should have a good sense of professional ethics and social morality, have a sense of responsibility and mission for this major, and take the responsibility of culture inheritance and rejuvenation.

- (13) 具有良好的身体和心理素质；

Students should be sound in body and mind.

- (14) 具有对多元文化的包容心态和宽阔的国际化视野；

Students should be with an open mind on multicultural and have wide international horizon.

- (15) 勤于思考，善于钻研，勇于创新，厚德博学，追求卓越；

Students should think more, study diligently, be innovative, be with profound virtue, learn broadly and pursuit for excellence.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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	√				
毕业要求 13	√				
毕业要求 14					√
毕业要求 15	√				√

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程：

专业核心课程：船体构造与制图、船舶静力学、船舶阻力、船舶推进、船舶运动学、船舶结构力学、船体强度与结构设计、船舶设计原理、船舶建造工艺学。

Core Courses: Ship Structure and Graphing, Ship Statics, Ship Resistance, Ship Propulsion, Ship Kinematics, ship structural mechanics, Ship Intensity and Structure Design, Principles of Ship Design, Shipbuilding technology.

(二) 专业特色课程：

专业特色课程：现代造船技术、船舶工程经济学、人机工程与船舶美学、船海结构安全与规范概论。

Characteristic Courses: Modern Ship Manufacturing Mode, Ship Engineering Economics, Ergonomic principles and Ship Aesthetics, Introduction of Marine Structural Safety and Regulations.

附：毕业要求实现矩阵：

专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业（卓越工程师专业）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	√											√			
		中国近现代史纲要 Outline of Contemporary and Modern Chinese History	√														
		毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	√							√				√			
		马克思主义基本原理 Marxism Philosophy	√							√							

专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业（卓越工程师专业）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		军事理论 Military Theory	√											√			
		心理健康教育 Mental Health Education													√		
		大学计算机基础 Foundation of Computer		√	√												
		体育 1 Physical Education I													√		
		体育 2 Physical Education II													√		
		体育 3 Physical Education III													√		
		体育 4 Physical Education IV													√		
		大学英语 A1 College English A 1	√						√							√	
		大学英语 A2 College English A II	√						√							√	
		大学英语 A3 College English A III	√						√							√	
		大学英语 A4 College English A IV	√						√							√	
		程序设计语言课程 Courses of Computer Program Design			√												
		创新创业类 Innovation and Entrepreneurship Courses						√		√							√
		人文社科类 Arts and Social Science Courses	√														
		经济管理类 Economy and Management Courses				√											
		科学技术类 Science and Technology Courses		√													√
		艺术体育类 Art and Physical Education Courses	√												√		
		专业导论 Introduction to the Program	√								√						
		工程图学 B Engineering Graphics B		√				√									
		高等数学 A 上 Advanced Mathematics A1			√							√					
		高等数学 A 下 Advanced Mathematics A2			√							√					
		线性代数 Linear Algebra			√							√					
		大学物理 B Physics B			√							√					
		物理实验 B Physics Lab. B			√								√				
		理论力学 A Theoretical Mechanics A			√							√					

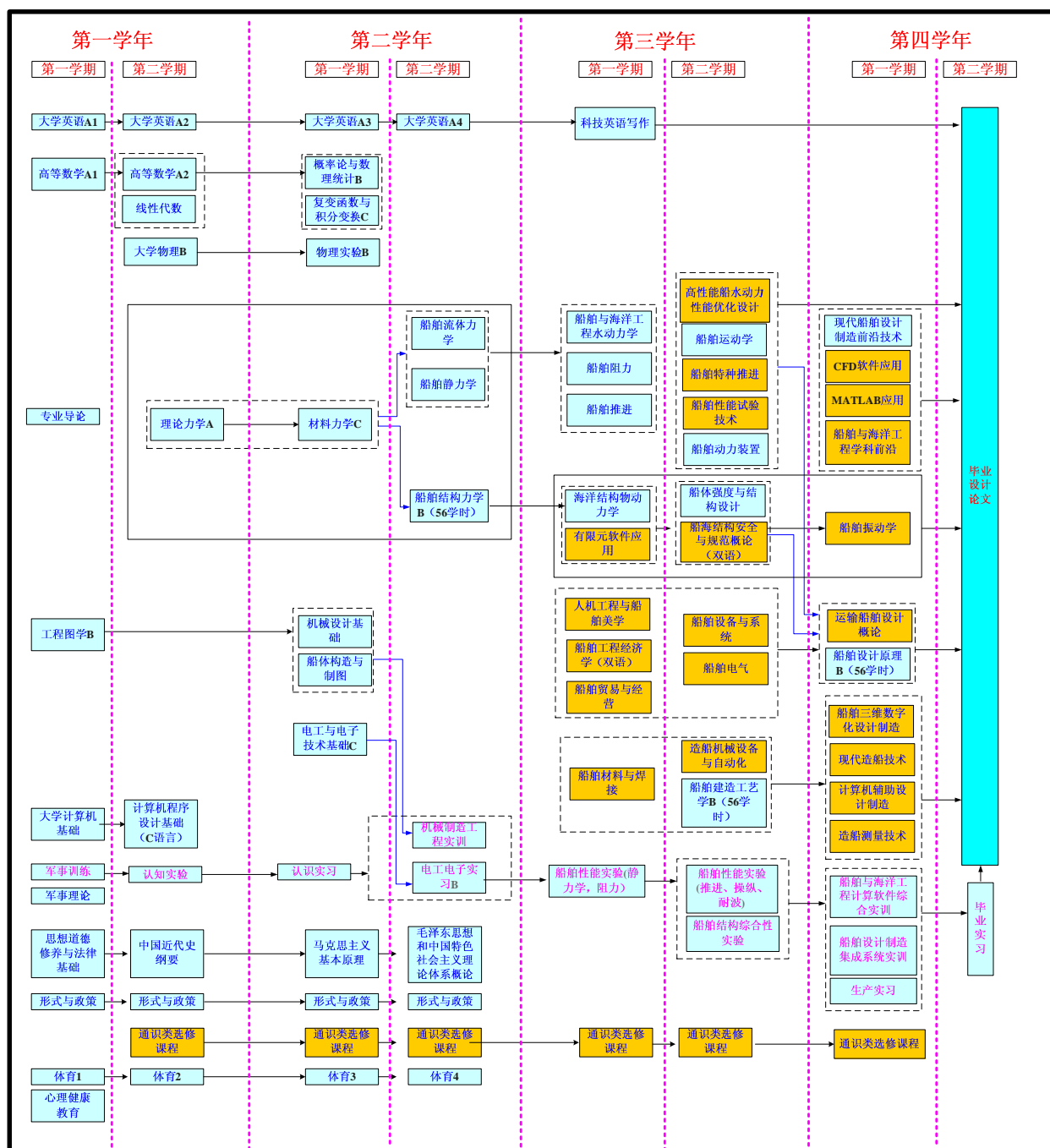
专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业（卓越工程师专业）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		概率论与数理统计 B Probability and Mathematical Statistics B			√							√					
		电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C		√	√							√					
		材料力学 Materials Mechanics			√							√					
		复变函数与积分变换 C Complex Function & Integral Transformation C			√							√					
		机械设计基础 Fundamentals of Mechanical Design		√		√	√	√		√		√		√			√
√		船体构造与制图 Ship Structure and Graphing		√		√		√		√		√		√			√
		船舶流体力学 Ship Fluid Mechanics		√	√	√		√		√	√	√		√			√
√		船舶结构力学 A Ship Structural Mechanics A		√	√	√		√		√		√		√			√
√		船舶静力学 Ship Statics		√	√	√		√		√		√	√	√			√
		船舶与海洋工程水动力学 Hydrodynamics of Ocean Engineering		√	√	√		√		√		√		√			√
		海洋结构物动力学 Offshore Structure Dynamics		√	√	√		√		√		√		√			√
√		船舶阻力 Ship Resistance		√	√	√		√		√		√		√			√
√		船舶推进 Ship Propulsion		√	√	√		√		√		√		√			√
		科技英语写作 Scientific Documents Writing in English							√					√		√	√
√		船舶运动学 Ship Maneuverability and Seakeeping		√	√	√		√		√		√		√			√
√		船体强度与结构设计 Ship Intensity and Structure Design		√	√	√		√		√		√		√			√
		船舶动力装置 Ship Power Equipment		√		√		√		√		√		√			√
√		船舶建造工艺 Ship Building Technology		√	√	√		√		√		√		√			√
√		船舶设计原理 Principles of Ship Design		√	√	√		√		√		√		√			√
	√	人机工程与船舶美学 Ship Aesthetics	√			√					√	√		√			√
		船舶材料与焊接 Ship Materials and Welding		√		√		√		√		√		√			√
	√	船舶工程经济学 Ship Engineering Economics		√		√					√			√			√
		船舶贸易与经营 Ship Trade and Business				√	√				√			√			√
		有限元软件应用 FEA Software Application				√						√	√	√			√
		船舶特种推进 Unconventional Marine Propulsion				√						√		√			√

专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业（卓越工程师专业）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		高性能船水动力性能优化设计 Hydrodynamic Optimal Design of High Performance Ship		√		√						√		√			√
		船舶设备与系统 Ship Equipment and Systems		√		√						√		√			√
		船舶电气 Ship Electrical Equipment				√						√		√			√
		造船机械设备与自动化 Shipbuilding Equipment and Automation				√						√		√			√
		船舶性能试验技术 Experimental Technology of Ship Performance			√	√		√				√	√	√			√
	√	船海结构安全与规范概论（双语） Introduction of Marine Structural Safety and Regulations				√			√		√	√		√		√	√
		运输船舶设计概论 Introduction to Transport Ship Design		√		√		√			√	√		√			√
		造船测量技术 Shipbuilding Measurement Technology			√	√						√	√	√			√
		船舶三维数字化设计制造 Manufacturing of Ship 3D Digital Design		√	√	√		√				√	√	√			√
		计算机辅助设计制造 Computer Aided Ship Design		√	√	√		√				√	√	√			√
		船舶振动学 Ship Vibrations			√	√						√		√			√
	√	现代造船技术 Modern Ship Manufacturing Technology		√		√		√			√	√		√			√
		船舶与海洋工程学科前沿 Frontier of Ship and Ocean Engineering		√				√		√	√			√		√	√
		Matlab 应用 MATLAB Application				√	√						√	√			√
		CFD 软件应用 CFD Software Application				√						√	√	√			√
		军事训练 Military Training							√					√	√		
		认识实习 Practice of Understanding	√	√			√			√				√		√	√
		认知实验 Experiment on Recognition		√			√							√			√
		电工电子实习 B Practice of Electrical Engineering & Electronics B			√			√						√			√
		机械制造工程实训 C Practice of Mechanical Manufacturing Engineering C			√			√						√			√
		船舶性能实验(静力学, 阻力) Experiment on Ship Performance (1)			√	√						√	√				
		船舶性能实验(推进、操纵、耐波) Experiment on Ship Performance(2)			√	√						√	√				

专业 核心 课程	专业 特色 课程	课程名称	船舶与海洋工程专业（卓越工程师专业）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		船舶结构综合性实验 Comprehensive Experiments of Ship Structure			√	√						√	√				
		船舶设计制造集成系统实训 Application of CIMS for ship		√	√	√						√	√	√			√
		船舶与海洋工程计算软件综合实训 Comprehensive Training on Ship and Ocean Engineering Calculation Software		√	√	√						√	√	√			√
		生产实习（含虚拟实习） Practice of Production		√		√	√	√			√	√		√		√	√
		毕业实习 Graduation Practice						√		√	√			√			√
		毕业设计 Graduation Design				√		√	√	√		√		√		√	√

三、课程教学进程图

III Teaching Process Map



四、理论教学建议进程表

IV Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实 验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
通 识 课 程 Public Basic Courses	必 修 课 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		错误! 未找到		
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003131	军事理论 Military Theory	1	32			16		2-4		
		1050001131	心理健康教育 Mental Health Education	1	16					1		
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1		
		4210001111	体育 1 Physical Education I	1	32					1		
		4210002111	体育 2 Physical Education II	1	32					2	体育 1	
		4210003111	体育 3 Physical Education III	1	32					3	体育 2	
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3	
		4030002111	大学英语 A1 College English A I	3	64				16	1		
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1	
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2	
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3	
		程序设计语言课程组(三选一, 3 学分) Courses of Computer Program Design (select one out of three, Credits: 3)										
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
		4120024111	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2		
		4120025111	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48		12			2		
		小 计 Subtotal		35	736		24	64	64			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur			
学 科 大 类 课 程 Basic Disciplinary Courses	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses		全校学生要求至少取得 9 个学分，且必须选修艺术体育类课程中的艺术类相关课程，取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程，其他专业学生至少选修一门科学技术类课程。 All students are required to obtain at least 9 credits, and must select art courses from <i>Art and Physical Education Courses</i> to obtain at least 2 credits. Science and engineering students should select at least one course from <i>Arts and Social Science Courses</i> or <i>Economy and Management Courses</i> , and other students should select at least one course from <i>Science and Technology Courses</i> .								
		人文社科类 Arts and Social Science Courses										
		经济管理类 Economy and Management Courses										
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
	必修课 Required Courses	4140160111	专业导论 Introduction to the Program	1	16					1		
		4180017111	工程图学 B Engineering Graphics C	4	64		4			1		
		4050063111	高等数学 A 上 Advanced Mathematics A1	5	80					1		
		4050064111	高等数学 A 下 Advanced Mathematics A2	5	80					2		
		4140125111	理论力学 A Theoretical Mechanics A	4.5	72					2		
		4050229111	线性代数 Linear Algebra	2.5	40					2		
		4050463131	大学物理 PhysicsB	5	80					2		
		4050224111	物理实验 B Physics Lab. B	1	32	32				3		
4050058111		概率论与数理统计 B Probability and Mathematical Statistics B	3	48					3			
4100012111		电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C	4	64	10				3			
材料力学课程组(至少取得 4 学分) Course Group of Materials Mechanics(At least 4 credits are Required)												
4140004111		材料力学 C Materials Mechanics C	4	64	4				3			
4140002111		材料力学 A Materials Mechanics A	5	80	8				3			
小 计 Subtotal		39	640	46	4							
程 专 业 课 Specialized Courses	必修课 Required Courses	4050053111	复变函数与积分变换 C Complex Function & Integral Transformation C	2	32					3		
		4180031111	机械设计基础 Fundamentals of Mechanical Design	3.5	56	6				3		
		4140013111	船体构造与制图 Ship Structure and Graphing	4	64					3		
		4140436131	船舶流体力学 Ship Fluid Mechanics	4	64	6				4		
		4140018111	船舶结构力学 B Ship Structural Mechanics B	3.5	56					4		
		4140437131	船舶静力学 Ship Statics	3.5	56			16		4		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Cr	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实 验 Exp.	上 机 Operation	实践 Practice	课外 Extra-cur			
		4140268121	船舶与海洋工程水动力学 Hydrodynamics of Ocean Engineering B	3.5	56					5		
		4140288121	海洋结构物动力学 Offshore Structure Dynamics	2	32					5		
		4140037111	船舶阻力 Ship Resistance	2.5	40					5		
		4140266121	船舶推进 Ship Propulsion	4	64			16		5		
		4030062111	科技英语写作 Scientific Documents Writing in English	1	16					5		
		4140035111	船舶运动学 Ship Maneuverability and Seakeeping	3	48					6		
		4140270121	船体强度与结构设计 Ship Intensity and Structure Design	4.5	72			16		6 (企业)		
		4150014111	船舶动力装置 Ship Power Equipment	2	32					6		
		4140016111	船舶建造工艺学 B Ship Building Technology	3.5	56	4				6 (企业)		
		4140024111	船舶设计原理 B Principles of Ship Design B	3.5	56					7 (企业)		
		小 计 Subtotal		50	800	16		48				
	选修课 Elective Courses	4140441131	人机工程与船舶美学 Ship Aesthetics	2	32					5		
		4140011111	船舶材料与焊接 Ship Materials and Welding	2	32					5		
		4140442131	船舶工程经济学 Ship Engineering Economics	2	32					5		
		4140365131	船舶贸易与经营 Ship Trade and Business	2	32					5		
		4140422131	有限元软件应用 FEA Software Application	2	32					5		
		4140367131	船舶特种推进 Unconventional Marine Propulsion	2	32					6		
		4140063111	高性能船水动力性能优化设计 Hydrodynamic Optimal Design of High Performance Ship	2	32					6		
		4140022111	船舶设备与系统 Ship Equipment and Systems	2	32					6		
		4100005111	船舶电气 Ship Electrical Equipment	2	32					6		
		4140408131	造船机械设备与自动化 Shipbuilding Equipment and Automation	2	32	2				6		
		4140026111	船舶性能试验技术 Experimental Technology of Ship Performance	2	32					6		
		4140455131	船海结构安全与规范概论 Introduction of Marine Structural Safety and Regulations	2	32					6		
		4140151111	运输船舶设计概论 Introduction to Transport Ship Design	2	32					7		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实 验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur				
		4140156111	造船测量技术 Shipbuilding Measurement Technology	2	32	2				7			
		4140093111	计算机辅助设计制造 Computer Aided Ship Design	3	48					7			
		4140036111	船舶振动学 Ship Vibrations	2	32					7			
		4140148111	现代造船技术 Modern Ship Manufacturing Technology	2	32					7			
		4140029111	船舶与海洋工程学科前沿 Frontier of Ship and Ocean Engineering	1	16					7			
		4140443131	Matlab 应用 MATLAB Application	2	32					7			
		4140444131	CFD 软件应用 CFD Software Application	2	32					7			
		4140456131	船舶三维数字化设计制造 Manufacturing of Ship 3D Digital Design	3	48					7			
		小 计 Subtotal			43	688	4						
	修读说明：要求至少选修 13.5 学分。 NOTE: Minimum subtotal credits: 13.5.												

五、集中性实践教学环节建议进程表

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Credits	建议修读学期 Suggested Term	第二专业 Second Major
1060002111	军事训练 Military Training	3	1.5	1	
4140233111	认知实验 Experiment on Recognition	1	1	3	
4140340121	认识实习 Practice of Understanding	2	2	3（企业）	
4100069111	电工电子实习 B Practice of Electrical Engineering & Electronics B	1	1	4	
4180114111	机械制造工程实训 C Practice of Mechanical Manufacturing Engineering C	2	2	4	
4140190111	船舶性能实验(静力学, 阻力) Experiment on Ship Performance (1)	1	1	5（分散）	
4140189111	船舶性能实验(推进、操纵、耐波) Experiment on Ship Performance(2)	1	1	6（分散）	
4140457131	船舶结构综合性实验 Comprehensive Experiments of Ship Structure	1	1	6（分散）	
4140458131	船舶设计制造集成系统实训 Application of CIMS for ship	4	4	7	
4140459131	船舶与海洋工程计算软件综合实训 Comprehensive Training on Ship and Ocean Engineering Calculation Software	4	4	7（分散）	
4140238111	生产实习 Practice of Production	3	3	7（企业）	
4140324121	毕业实习 Graduation Practice	2	2	8（企业）	

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Credits	建议修读学期 Suggested Term	第二专业 Second Major
4140335121	毕业设计 Graduation Design	15	10	8（企业）	
小 计 Subtotal		40	33.5		

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。通识教育选修课中要求选修《中国造船史》。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term. The course will be arranged by the University Students' Affairs' Department in each school. The courses of science and technology culture in the category of cultural quality education courses actually include the course of *China's Shipbuilding History*.

学院教学责任人：王丽铮
专业培养方案责任人：丁江明

【交通运输专业（卓越工程师班）】2014 版本本科培养方案

Undergraduate Education Plan for Specialty in Transportation (Excellent Engineer Class)(2014)

专业名称	交通运输	主干学科	交通运输工程
Major	Transportation	Major Disciplines	Transportation Engineering
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of Engineering
所属大类	交通运输类	大类培养年限	1.5 年
Disciplinary	Transportation Engineering	Duration	1.5 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	39.5	37	\	38.5	\	190
选修课 Elective Courses	9	6	15	\	\	10	

一、培养目标与毕业要求

I Educational Objectives & Requirement

(一) 培养目标

- (1) 身心健康，具备良好的敬业精神、社会责任感和工程职业道德，关注当代全球和社会问题，具有质量意识、环境意识和安全意识。

Have psychosomatic health, be equipped with a high level of professionalism, social responsibility, and good professional ethics; Pay close attention to contemporary global problems and social issues, have consciousness for quality, environment and safety.

- (2) 具有从事交通运输工程，尤其是水路运输工程领域工程设计和技术服务等工作所需的工程数学、运筹学和交通运输组织学，以及经济与管理等方面的专业基础知识以及其它相关自然科学知识。

Grasp basic knowledge of mathematics, operations research and transportation organization et.al and grasp professional knowledge of economics and management that needed for jobs in transportation engineering, especially waterage engineering field, such as engineering design, technical service and management and so on.

- (3) 具有发现问题、分析问题，并综合运用所学的知识解决交通运输系统技术分析、规划、研究和应用过程中实际问题的能力。

Have capability to discover and analyze problems, to solve practical problems that happen in the process of design, planning, research for transportation engineering by using the learned knowledge.

- (4) 熟练掌握交通运输领域相关的设计、研发和开发过程所需相关工具和软硬件技术。
Master software and hardware technologies that needed in the process of R&D, design, manufacture for transportation engineering.
- (5) 具有良好的表达能力和沟通能力, 具有良好的团队意识和合作精神, 具有创新求实精神, 具有国际视野和跨文化的交流与合作能力, 具有主动适应学科发展和渗入其他学科领域的意识和能力。
Be equipped with good communication and presentation skills, have good team work and creative spirit, have international vision and inter-culture communication ability, meet the development of discipline actively and infiltrating to other related disciplines.

(二) 毕业要求

- (1) 应具有科学的世界观和正确的人生观, 坚持社会主义和共产主义的理想信念;
Have scientific and correct outlook on world and life, insist in the ideal faith of socialism and communism.
- (2) 应具有良好的道德品质、社会责任感和职业道德, 具有爱岗敬业、遵纪守法、诚实守信、自律谦让的品质, 自觉遵守所属职业体系的职业行为准则;
Have good moral character, the sense of social responsibility and professional ethics, have good qualities as conscientious and meticulous in work, law-abiding, honest and trustworthy, self-discipline of humility and so on.
- (3) 具有较宽的学科背景和综合素养, 了解国际先进技术现状和发展趋势, 制定并实施职业发展计划;
Grasp wide discipline background and comprehensive quality, familiar with the current situation and development trend of international advanced technology, formulate and implement of occupation development plan;
- (4) 具有良好的身体和心理素质, 敢于挑战, 并勇于面对挫折和失败; 具有对多元文化的包容心态和宽阔的国际化视野; 具有较强的人际交往能力及团队合作精神, 能够适应不断变化的人际环境和工作环境。
Be sound in body and mind, have the courage to challenge and face the setbacks and failures, have an open mind on multicultural and have wide international horizon, be equipped with good interpersonal skills and strong team work spirit, be able to adapt to changing social and working environment.
- (5) 具有逻辑思维能力、系统思维能力及创新能力, 具有发现问题、分析问题, 并运用所学的知识综合解决交通运输实际工作中的问题;
Have the ability to logical thinking, systematical thinking and innovation, be able to discover, analyze and solve practical problems that happen in transportation engineering field by using the learned knowledge.
- (6) 具备熟练的计算机应用能力, 特别是对文档与表格以及 PPT 的制作, 掌握计算机在交通运输管理中应用的基本技术, 能够进行数据采集、处理和分析;
Master the computer operation skills, especially office software as word, excel and ppt, have the basic techniques applied in transportation management, can make data gathering, data process and data analysis.
- (7) 具有基本的英语阅读能力和会话能力, 能够运用外语知识解决实际工作中的一般问题, 具备基本的翻译专业相关科技文献的能力;
Have Basic English reading and speaking skills, be able to solve the general problem in

the practical work by English.

- (8) 掌握文献检索、资料查询的基本方法、具有初步的科学研究和实际工作能力。
Grasp basic method of document retrieval and information inquiry, be equipped with scientific research and practical work.
- (9) 掌握哲学、历史、文学、法学知识以及艺术修养等人文社会科学的基本知识，具备人文和社会科学等方面的基本素质；
Grasp elementary knowledge of philosophy, history, literature, law, art and social science, have good humanistic quality and Social science literacy.
- (10) 掌握本专业自然科学与工程技术的基础知识和前沿知识，具备交通科学素养和工程意识；
Grasp elementary knowledge and frontier knowledge of transportation engineering, and have good scientific quality and engineering consciousness.
- (11) 掌握本专业所需的数学、物理、计算机、英语等相关学科的基本理论、基本知识和基本技能；
Grasp elementary theories, knowledge and skills of mathematics, physics, mechanics, and computer and so on that needed for transportation engineering.
- (12) 掌握综合交通运输相关的知识体系，通过专业理论与基本知识的学习，使学生建立起大交通概念，掌握交通运输技术、交通规划理论与方法，尤其是与水路运输相衔接的交通枢纽等方面的专业知识，并具有基本的工程设计和技术服务等工作的能力；
Grasp knowledge hierarchy of the integrated transportation related fields, establish the large traffic concept by learning professional theory and elementary knowledge, such as transportation technology, transport planning theory and method etc., Especially the professional knowledge of traffic hub be linked with waterage , and have the capability for engineering design and technical service .
- (13) 掌握港口相关的知识体系，通过专业理论与基本知识的学习，熟练掌握港口组织管理和技术装备的基本知识和业务知识，并具有基本的工程设计和技术服务等工作的能力；
Grasp knowledge hierarchy of the port related fields, Master the elementary knowledge and business knowledge of port organization management and technical equipment by learning professional theory, and have the capability for engineering design and technical service .
- (14) 掌握航运管理和技术，以及航运相关领域的基本知识，并具有基本的工程设计和技术服务等工作的能力；
Grasp shipping management and technology, as well as the elementary knowledge of shipping related fields, and have the capability for engineering design and technical service .
- (15) 掌握与港口和航运相关的物流专业知识，广泛拓展知识范围，通过对物流工程、物流管理、仓储与配送、供应链管理、物流仿真等课程的学习，更好的为港口与航运企业提供服务。
Grasp logistics professional knowledge related with port and shipping, push the boundaries of knowledge, to offer better services for port and shipping company by studying logistics courses as logistics management, supply chain management et.al.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
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		√	√		√
毕业要求 13		√	√		√
毕业要求 14		√	√		√
毕业要求 15		√	√		√

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程:

港口装卸工艺、交通运输经济分析、现代物流组织与技术、交通运输规划概论、船舶货运技术、港口企业运作管理、船舶营运组织、国际集装箱运输与多式联运、国际航运业务与水运商务、公路运输组织学、交通运输安全工程。

Port Handling Techniques、Analysis on Transport Economics、Logistic Organization and Technology、Introduction to Transportation Planning、Ship Stowage Techniques、Port Operational Management、Shipping Operation and Organization、Multimodal Transport、Shipping Business、Road Transport organization、Traffic and Transportation Safety.

(二) 专业特色课程:

港口装卸工艺, 船舶营运组织, 港口企业运作管理, 国际航运业务与水运商务, 交通运输经济分析, 现代物流组织与技术。

Characteristic Courses: Port Handling Techniques 、 Shipping Operation and Organization、Port Operational Management、Shipping Business、Analysis on Transport Economics、Logistics Operation and Technology.

附：毕业要求实现矩阵:

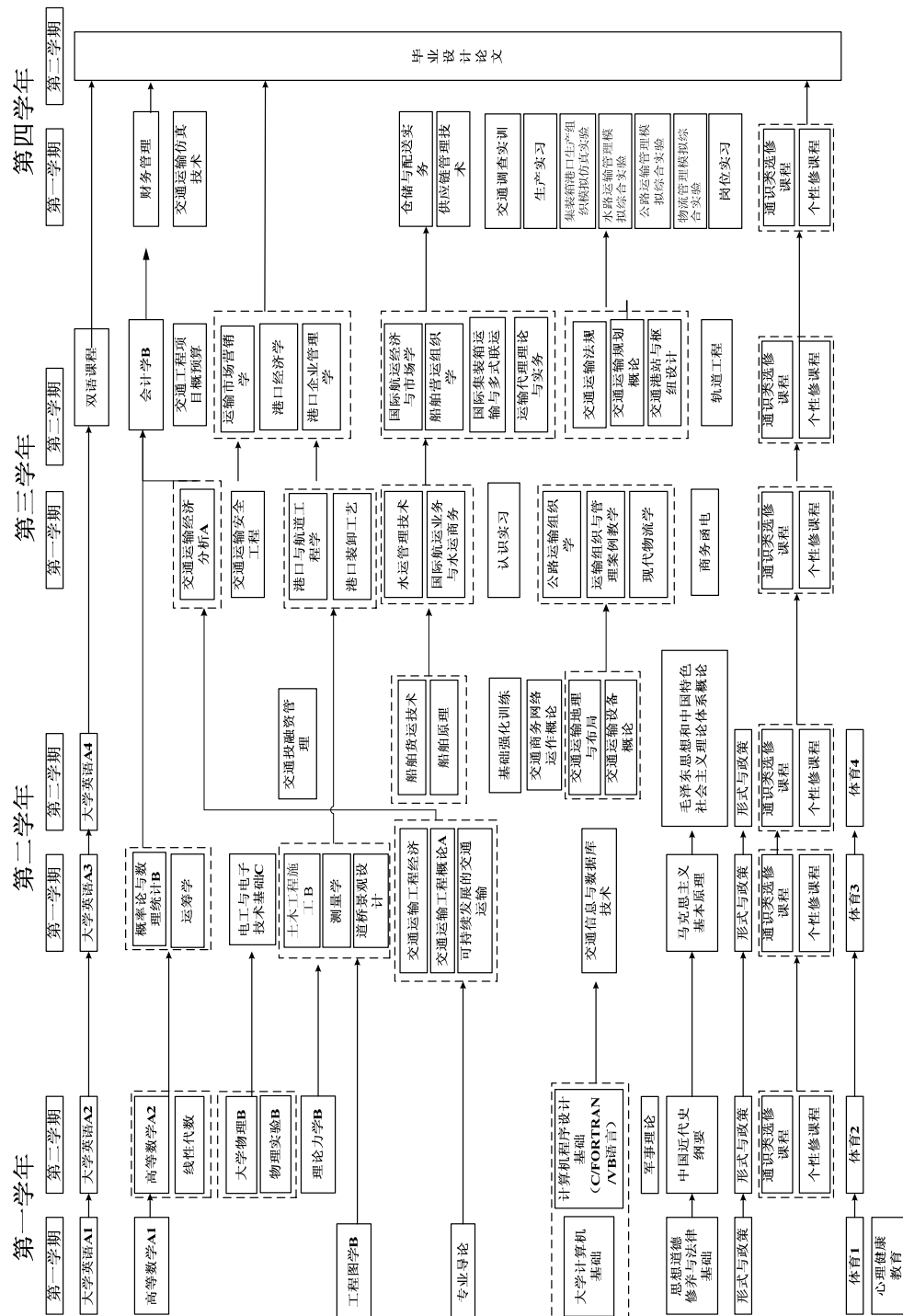
专业核 心课程	专业特 色课程	课程名称	交通运输专业（卓越工程师班）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		思想道德修养与法律基础	√	√		√					√						
		中国近现代史纲要	√	√		√					√						
		毛泽东思想和中国特色社会主 义理论体系概论	√	√		√					√						
		马克思主义基本原理	√	√		√					√						
		军事理论	√	√		√					√						
		体育				√											
		心理健康教育				√											
		大学英语			√	√			√				√				
		大学计算机基础			√			√					√				
		计算机程序设计基础(C 语 言)						√					√				
		高等数学											√				
		大学物理 B											√				
		工程图学 B											√				
		线性代数											√				
		运筹学					√						√	√	√	√	√
		物理实验 B											√				
		概率论与数理统计 B											√	√	√	√	√
		理论力学 B											√				
		电工与电子技术基础 C											√				
		测量学											√				
		专业导论			√							√					
		交通运输工程经济			√							√		√			
		交通运输工程概论 A			√							√		√			
		可持续发展的交通运输			√							√		√			
		交通商务网络运作概论			√							√					√
		交通信息与数据库技术						√					√				
		商务函电										√			√	√	√
		土木工程施工 B			√							√				√	√
		道桥景观设计			√							√					√

专业核 心课程	专业特 色课程	课程名称	交通运输专业（卓越工程师班）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		轨道工程			√							√					
		交通运输设备概论			√							√		√			
√		船舶货运技术			√							√				√	
		交通管理信息系统			√			√				√		√	√	√	√
		交通运输地理与布局			√							√		√	√	√	
		港口与航道工程学			√							√			√		
√	√	国际航运业务与水运商务			√							√			√	√	
√	√	现代物流组织与技术			√							√					√
√		公路运输组织学			√							√		√			
√		交通运输规划概论			√							√		√			
√	√	港口装卸工艺			√							√			√		
√	√	交通运输经济分析 A			√							√		√			
		国际航运与港口经济技术分析			√				√			√			√	√	
		物流系统规划与设计			√							√					√
		运输代理理论与实务			√							√			√	√	
√	√	港口企业运作管理			√							√			√		
√	√	船舶营运组织			√							√				√	
		交通运输法规 A			√							√		√			
		运输代理理论与实务			√							√				√	
		船舶原理			√							√				√	
		交通投融资管理			√							√		√			
		运输组织与管理案例教学			√							√		√			√
		水运管理技术			√				√			√			√	√	
√		国际集装箱运输与多式联运			√							√		√	√	√	
		现代物流学			√							√					√
		交通运输仿真技术			√			√				√		√			
		会计学 B			√							√					
		财务管理 B			√							√					
		交通工程项目概预算			√							√		√	√	√	

专业核 心课程	专业特 色课程	课程名称	交通运输专业（卓越工程师班）毕业要求														
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
√		交通运输安全工程			√							√		√			
		仓储与配送实务			√							√					√
		供应链管理技术			√							√					√
		交通港站与枢纽设计			√							√		√			
		军事训练	√	√		√											
		基础强化训练						√				√	√				
		认识实习			√							√			√		
		船舶货运技术课程设计			√							√				√	
		管理信息系统课程设计			√			√				√		√	√	√	√
		港口装卸工艺课程设计			√							√			√		
		船型技术经济论证课程设 计			√							√		√		√	
		交通调查实训			√							√		√			
		生产实习			√		√					√			√		
		集装箱港口生产组织模拟 仿真实验			√			√				√			√		
		水路运输管理模拟综合实 验			√			√				√		√			
		公路运输管理模拟综合实 验			√			√				√		√			
		物流管理模拟综合实验			√			√				√					√
		岗位实习					√	√				√		√	√	√	√
		毕业设计			√			√	√	√		√					

三、课程教学进程图

III Teaching Process Map



四、理论教学建议进程表

IV Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crts	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur				
通 识 课 程 Public Basic Courses	必修课 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6			
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6			
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6			
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6			
		1060001111	军事理论 Military Theory	1	32			16		2-4			
		4210001111	体育 1 Physical Education I	1	32					1			
		4210002111	体育 2 Physical Education II	1	32					2	体育 1		
		4210003111	体育 3 Physical Education III	1	32					3	体育 2		
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3		
		1050001110	心理健康教育 Mental Health Education	1	16					1			
		4030002111	大学英语 A1 College English A 1	3	64				16	1			
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1		
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2		
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3		
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1			
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design (C Language)	3	48		12			2			
		小 计 Subtotal				35	736		24	64			
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses			全校学生要求至少取得 9 个学分，且必须选修艺术体育类课程中的艺术类相关课程，取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程，其他专业学生至少选修一门科学技术类课程。 All students are required to obtain at least 9 credits, and must select art courses from <i>Art and Physical Education Courses</i> to obtain at least 2 credits. Science and engineering students should select at least one course from <i>Arts and Social Science Courses</i> or <i>Economy and Management Courses</i> , and other students should select at least one course from <i>Science and Technology Courses</i> .								
		人文社科类 Arts and Social Science Courses											
		经济管理类 Economy and Management Courses											
		科学技术类 Science and Technology Courses											
		艺术体育类 Art and Physical Education Courses											

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Cr	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur				
学 科 大 类 课 程	必修课程 Required Courses	4140248111	专业导论 Introduction to the Program	1.0	16					1			
		4180017111	工程图学 B Engineering Graphics B	4.0	64		4			1			
		4050063111	高等数学 A1 Advanced Mathematics A1	5	80					1			
		4050064111	高等数学 A2 Advanced Mathematics A2	5	80					2	高等数学 A1		
		4050229111	线性代数 Linear Algebra	2.5	40					1-2			
		4140125111	理论力学 B Theoretical Mechanics B	3.0	48					2			
		4050463130	大学物理 B Physics B	5	80					2			
		4050224111	物理实验 B Physics Lab. B	1.0	32	32				3	大学物理 B		
		4050254111	运筹学 Operational Research	3.0	48					3			
		4050058111	概率论与数理统计 B Probability and Mathematical Statistics B	3.0	48					3			
		4100012111	电工与电子技术基础 C Fundamentals of Electrical Engineering &	4.0	64	10				3			
		4140006111	测量学 Measurement Theory	3.0	48	6				3			
		小 计 Subtotal			39.5	648	48	4					
	选修课程 Elective Courses	4140115111	交通运输工程经济 Engineering Economics of Transportation	2	32					3			
		4140113111	交通运输工程概论 A An Introduction to Transportation Engineering A	2	32					3	专业导论		
		4140124111	可持续发展的交通运输 Sustainable Transportation	2	32					3			
		4140107111	交通信息与数据库技术 Traffic Information and Database Technique	2	32					3			
		4140143111	土木工程施工 B Construction of Civil Engineering B	2	32					3			
		4140052111	道桥景观设计 Landscape Design for Highway and Bridge	2	32					3			
		4140406131	虚拟运输企业商务管理 Virtual transport enterprise business management	2	32					4			
		4140136111	商务函电 Business Correspondence	2	32					5			
		4140083111	轨道工程 Rail Engineering	2	32					6			
		小 计 Subtotal			18	288							
		修读说明：要求至少选修 6 学分。 NOTE: Minimum subtotal credits: 6.											

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
专 业 课 程 Specialized Courses	必修课程 Required Courses	4140117031	交通运输设备概论 Introduction to Transportation Equipment	1.5	24					4		
		4140262121	船舶货运技术 Ship Stowage Techniques	2	32					4		
		4140298121	交通管理信息系统 Management Information System for Transportation	2.5	40					4		
		4140110111	交通运输地理与布局 Transport Geography and Layout	2	32					4		
		4140060111	港口与航道工程学 Harbor and Waterway Engineering	2	32					5		
		4140086111	国际航运业务与水运商务 Shipping Business	3.0	48					5		
		4140253111	现代物流组织与技术 Logistic Organization and Technology	2	32					5		
		4140081111	公路运输组织学 Road Transport organization	2	32					5		
		4140116111	交通运输规划概论 Introduction to Transportation Planning	1.5	24					5		
		4140278121	港口装卸工艺 Port Handling Techniques	3	48					5		
		4140153111	交通运输经济分析 A Analysis on Transport Economics A	2	32					5		
		4140283121	国际航运与港口经济技术分析 Economic and Technological Analysis for International Shipping and Port	3.5	56					6		
		4140145111	物流系统规划与设计 Logistics System Planning and Design	1.5	24					6		
		4140152111	运输代理理论与实务 Theory and Practice of Freight Forwarding	1.5	24					6		
		4140254111	港口企业运作管理 Port Operational Management	2.5	40					6		
		4140267121	船舶营运组织 Shipping Operation and Organization	2.5	40					6		
		4140111111	交通运输法规 A Transport Laws and Regulations A	2	32					6		
		小 计 Subtotal		37	592							
	选修课程 Elective Courses	4140033111	船舶原理 Ship Theory	2	32					4		
		4140105111	交通投融资管理 Transport Investment and Financing	2	32					4		
		4140478141	运输组织与管理案例教学 Case Teaching of Transportation Organization and Management	3	48					5		
		4140138111	水运管理技术 Techniques of Waterborne Management	2	32					5		
		4140257111	交通运输安全工程 Traffic and Transportation Safety	2	32					5		
		4140147111	现代物流学 Modern Logistics	2.5	40		8			5		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140087111	国际集装箱运输与多式联运 Multimodal Transport	2	32					6		
		4170065111	会计学 B Accounting B	2	32					6		
		4140098111	交通工程项目概预算 Budgeting of Traffic Engineering Project	2	32					6		
		4140152111	运输代理理论与实务 Theory and Practices of Transport Agency	2	32					6		
		4140296121	交通港站与枢纽设计 Traffic Hub and Terminal design	3	48			16		6		
		4140306121	交通运输仿真技术 Simulation Techniques of Transportation	3	48					7		
		4170014111	财务管理 B Financial Management B	2	32					7		
		4140161111	仓储与配送实务 Warehousing and Distribution Practices	2	32					7		
		4140452121	供应链管理技术 Supply Chain Management Techniques	2	32					7		
		小 计 Subtotal		31.5	504		8	16				
		修读说明：要求至少选修 15 学分。 NOTE: Minimum subtotal credits: 15.										

五、集中性实践教学环节

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002111	军事训练 Military Training	3	1.5	1	
4140208111	基础强化训练 Foundation Strengthening Training	1	1	4(暑期)	
4140226111	认识实习 Practice of Understanding	1	1	5	
4140181111	船舶货运技术课程设计 The design of Ship Stowage Techniques	1.5	1.5	4	
4140203111	管理信息系统课程设计 The design of Management Information System	1.5	1.5	4	
4140381131	港口装卸工艺课程设计 The design of Port Handling Techniques	1.5	1.5	5	
4140369131	船型技术经济论证课程设计 The design of The Technical Economy Demonstration for Ship Type	1.5	1.5	6	
4140211111	交通调查实训 Practice of Traffic Investigation	1.5	1.5	7	
4140236111	生产实习 Practice of Production	2	2.0	7	
4140293121	集装箱港口生产组织模拟仿真实验 Simulation Experiment on Container Port Operation	1.5	1.5	7	

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 CrS	建议修读学期 Suggested Term	第二专业 Second Major
4140315121	水路运输管理模拟综合实验 Integrated Simulation Experiment on Water Transport Management	1	1	7	
4140281121	公路运输管理模拟综合实验 Integrated Simulation Experiment on road Transport Management	1	1	7	
4140319121	物流管理模拟综合实验 Integrated Simulation Experiment of Logistics Management	1	1	7	
4140327121	岗位实习 Internship	10	10	7（企业）	
4140330121	毕业论文 Graduation Thesis	17	11	8	
小 计 Subtotal		46	38.5		

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

学院教学责任人：王丽铮
专业培养方案责任人：柯姜岑

【道路桥梁与渡河工程专业（卓越工程师班）】2014 版本本科 培养方案

Undergraduate Education Plan for Specialty in road, bridge and river-crossing engineering (Excellent Engineer Class) (2014)

专业名称	道路桥梁与渡河工程	主干学科	力学、土木工程、交通运输工程
Major	road, bridge and river-crossing engineering	Major Disciplines	Mechanics, Civil Engineering, Traffic and Transportation Engineer
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of engineering
所属大类	交通运输类	大类培养年限	1.5 年
Disciplinary	Traffic transportation	Duration	1.5 years

最低毕业学分规定

Graduation Credit Criteria

课程类 Course Classification 课程性质 Course Nature	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	39.5	43	\	33	\	190
选修课 Elective Courses	9	6	14.5	\	\	10	

一、培养目标与毕业要求

I Educational Objectives & Requirement

(一) 培养目标

- (1) 身心健康，具备良好的敬业精神、社会责任感和工程职业道德，关注当代全球和社会问题，具有质量意识、环境意识和安全意识。
- (2) 具有扎实的数学、力学、自然科学和工程技术的基础理论知识，较好的人文社会科学、法律法规、经济管理及相关学科的基本理论知识；
- (3) 掌握道路工程及桥梁工程领域较扎实的技术理论基础知识和宽广的专业知识；了解学科前沿及发展趋势。
- (4) 具有本专业必需的测量、设计、计算、施工组织以及文献检索等基本技能及较强的计算机应用能力和英语应用能力；
- (5) 具有较强的自学能力、实践能力、工程设计能力、创新意识和较高的综合素质。
- (6) 具有国际视野和跨文化的交流、竞争与合作能力，道路桥梁与渡河工程领域德才兼备的应用型卓越工程师。

Educational Objectives

- (1) Be sound in body and mind, industrious with work, a strong sense of social responsibility and intense work ethic, be concerned and aware about the global and social issues, be focused on quality, environment and safety.

- (2) A thorough grounding of knowledge in mathematics, mechanics, science and engineering, a good grounding of knowledge in humanities and social sciences, law, economic management and related disciplines
- (3) A thorough grounding of professional knowledge in road and bridge engineering, a good understanding of the front and trends of the subject.
- (4) Be qualified with the basic skills required by the subject, such as measurement, design, calculation, construction organization and literature search, have excellent computer and English application ability.
- (5) Have excellent self-learning ability, practice ability, engineering design ability, innovation consciousness, and have a high comprehensive quality.
- (6) Have international perspectives and master the ability of cross-culture communication and cooperation. have strong ability to solve practical problems in design and manufacturing, be qualified as an excellent engineer with sound professional ethics and knowledge in the field of road and bridge engineering.

(二) 毕业要求

1. 素质要求

- (1) 具备良好思想道德素质, 包括政治素质、思想素质、道德品质、法制意识、诚信意识等。具有一定的协调、管理、竞争与合作的基本能力, 具有团队合作精神, 适应团队运行、成长和壮大中的各种变迁, 初步具备带领团队前行的指向和能力基础。
- (2) 具备良好文化素质, 包括文化素养、文学艺术修养、现代意识、人际交往等。能够熟练利用现代交流媒介进行工程表达, 并进行工程文件的编纂, 如: 可行性分析报告、项目任务书、投标书等, 并可进行说明与阐释, 具备较强的人际交往能力, 能够控制自我并了解和理解他人需求和意愿, 具备较强的适应能力, 以灵活多样的方式处理不断变化的人际环境和工作环境。
- (3) 具备良好科学素质, 包括科学思维方法、科学研究方法、求实创新意识等。
- (4) 具备良好身心素质, 包括身体素质、心理素质等。

2. 能力要求

- (5) 具有良好的获取知识的能力, 包括自学能力、表达能力、社交能力、计算机及信息技术应用能力等, 具有为保持和增强职业能力, 适应发展的学习能力, 具有较强的求知欲和跨专业、跨文化的学习交流能力, 能够参与跨专业及国际性的竞争与合作。
- (6) 应用知识能力。具有能利用所学的理论知识与技术手段分析、解决实际工程问题的能力, 具有能够参与施工组织设计, 并具有道桥工程施工现场管理的能力。
- (7) 创新能力。具有对工程问题的基本认知、工程推理和判断能力, 能够发现、分析和判断问题的症结所在, 具有较强的创新意识和进行工程开发和设计、技术改造与创新的初步能力。

3. 知识要求

具有从事道路桥梁与渡河工程工作所需的基础科学技术知识以及一定的人文和社会科学知识

- (8) 数理知识和相关自然科学知识包括数学、物理、化学、测试与试验技术等。
- (9) 工程技术知识包括工程制图、机械、工程力学, 电工电子技术、结构设计基础、计算机技术等相关学科的知识。
- (10) 人文和社会科学知识: 具备较丰富的工程经济、管理、社会学、情报交流、法律、环境等人文与社会学的知识。

- (11) 熟练掌握一门外语，具有综合应用各种手段进行资料查询、获取信息的能力；
掌握扎实的道路桥梁工程基础知识和相关的方法、技能
- (12) 掌握道路桥梁工程基础知识，包括理论力学、材料力学、结构力学、道路建筑材料、测量学、工程地质、土质土力学等。
- (13) 掌握结构设计基本原理与方法，掌握混凝土基本构件、预应力混凝土受弯构件、钢结构的设计原理和方法，根据各种结构构件的受力特点、设计计算理论及一般构造要求，正确、合理地选用材料，拟定截面尺寸，安全、经济、合理地设计出符合使用要求的结构。
- (14) 掌握道路桥梁工程中常用的绘图和计算软件，如 CAD、Midas、纬地等。
拥有道路桥梁工程方面的专业技术知识，了解本专业的发展现状和趋势
- (15) 掌握道路勘测、路基工程、路面工程、桥梁工程设计原理与方法；
- (16) 具有道路与桥梁工程领域内重要测试与试验仪器的使用、材料与结构试验、力学分析与计算、工程制图、报告撰写等能力，了解本专业学科的最新专业理论与技术发展方向。

Educational Requirement

1. Quality requirement

- (1) Have good ideological and moral quality, including political quality ideological quality, moral quality, legal consciousness and credit legal consciousness. Be qualified with the basic quality of coordination, management, competition and cooperation and the consciousness of team work, be adaptable to the change in the operation, growth and development process of team, preliminarily have a capability to lead a team.
- (2) Have a good cultural quality, including cultural manners, literary and aesthetic knowledge, modern consciousness and interpersonal communication, excellent use of modern media in engineering expression, be qualified with the compilation and explanation of engineering files, such as feasibility study report, project assignment book and tender, and have strong interpersonal skills, be qualified with self - control and knowing the requirement of other people, have a good adaptability, can deal with the changing personal and work environment in a flexible way.
- (3) Have good scientific quality, including methods of scientific thinking, scientific study, and innovation consciousness.
- (4) Have good physical and mind quality, including physical quality and mind quality.

2. Capability requirement

- (5) Have good capability to get knowledge, including self-study ability, presentation skill, sociality ability, computer and information technology application ability, have the learning ability to be adapt to the development in order to keep and improve professional ability, have a strong thirst for knowledge and Interdisciplinary, cross-cultural learning and communication ability, can participate in the multi – major international competition and cooperation.
- (6) The application ability of knowledge, have the ability to analyze and solve practical engineering problems using theoretical knowledge and technology, have the ability to Participate in the organization and design of construction, and have the ability to manage the construction site of road and bridge engineering.
- (7) Innovation ability, have a basic concept, reasoning and judgment ability on engineering problems, be able to identify the and strike at the roots of problems, have a strong

innovation consciousness and elementary ability to design, development, Technological renovation and Innovation of engineering projects.

3. Knowledge requirement

Have the basic science and technology knowledge and humanities and social sciences required by the work on the field of road, bridge and river-crossing engineering.

- (8) Mathematical knowledge and related scientific knowledge, including mathematics, physics, chemistry and experimental technique
- (9) Engineering technology knowledge, including Engineering Graphics, engineering mechanics, electrical and electronic technology, fundamental structural design, computer science and other related knowledge.
- (10) Humanities and social science knowledge, have abundant knowledge on engineering economics, management, sociology, information exchange, law and environment.
- (11) Master a foreign language, have the ability to research and get information using all kinds of media.

Master the basic knowledge and related skills of road and bridge engineering

- (12) Master the basic knowledge of bridge engineering, including theoretical mechanics, strength of materials, structural mechanics, Road Construction Materials, Measurement Theory, Engineering Geology, soil mechanics.
- (13) Master the basic principles and methods of structural design, master the design principles and methods of basic concrete members, prestressed flexural concrete members and steel structure. According to the strength characteristics of these kinds of structure, theory of design, and general requirement of configurations, the materials should be chosen correct or reasonably, the cross section should be determined preliminarily, and the structure designed should be safe, economic and reasonably.
- (14) Master the drawing programs and calculation software, such as autoCAD, Midas and HintCAD.

Master the professional knowledge in road and bridge engineering, understand the development status and trend of the subject.

- (15) Master the principle and method of highway survey and design, subgrade engineering, pavement engineering and bridge Engineering
- (16) Have the ability to use the important experimental equipments in the field of road and bridge engineering, master the basic test method of materials and structures, and be able to perform the simulation and analysis of structures, draw the engineering graphics and write report. Know the latest development trend of theory and technology of the subject.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5	培养目标 6
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			✓			✓
毕业要求 13			✓	✓		✓
毕业要求 14				✓	✓	✓
毕业要求 15			✓	✓		✓
毕业要求 16				✓	✓	✓

二、专业核心课程与专业特色课程

II Core Courses and Characteristic Courses

(一) 专业核心课程:

工程地质、结构力学、土力学、基础工程、道路建筑材料、测量学、混凝土结构、钢结构、道路勘测设计、路基路面工程、桥梁工程

Engineering Geology, Structural Mechanics, Soil Mechanics, Foundation Engineering, Road Construction Materials, Concrete Structures Theory, Steel Structures, Highway Survey and Design, Subgrade and Pavement Engineering, Bridge Engineering.

(二) 专业特色课程:

涉外工程、轨道工程、浮桥工程

Characteristic Courses: Overseas civil engineering, Rail Engineering, pontoon engineering

附：毕业要求实现矩阵：

专业 核心 课程	专业 特色 课程	课程名称	道路桥梁与渡河工程专业（卓越工程师班）毕业要求															
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		思想道德修养与法律基础	√	√		√						√						
		中国近现代史纲要	√									√						
		毛泽东思想和中国特色社会主义理论体系概论	√									√						
		马克思主义基本原理	√									√						
		军事理论	√			√												
		体育	√			√												
		大学英语		√			√						√					
		大学计算机基础					√				√		√					
		计算机程序设计基础					√				√							
		心理健康教育	√			√												

专业 核心 课程	专业 特色 课程	课程名称	道路桥梁与渡河工程专业（卓越工程师班）毕业要求															
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		专业导论			√				√									√
		工程图学			√								√					√
		高等数学			√					√								
		理论力学			√									√				
		大学物理			√					√								
		物理实验			√													
		线性代数			√					√								
		运筹学			√													
		概率论与数理统计			√					√								
		电工与电子技术基础			√						√							
√		测量学			√					√	√			√				√
		交通运输工程经济		√								√						
		交通运输工程概论							√			√						
		可持续发展的交通运输		√								√						
		虚拟运输企业商务管理	√	√								√						
		交通信息与数据库技术	√	√								√						
		商务函电	√	√								√						
		土木工程施工		√				√	√		√							
		道桥景观设计		√					√			√						
	√	轨道工程		√				√	√									√
		材料力学			√									√				
√		工程地质			√									√				
√		道路建筑材料			√									√				
√		道路勘测设计			√										√		√	
√		结构力学			√									√				

专业 核心 课程	专业 特色 课程	课程名称	道路桥梁与渡河工程专业（卓越工程师班）毕业要求															
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
√		混凝土结构			√										√			
√		土力学			√									√				
		桥涵水文		√										√				
√		钢结构		√	√										√			
√		基础工程		√	√										√			
√		路基路面工程		√	√										√		√	√
√		桥梁工程		√	√										√		√	√
		施工组织与概预算		√				√				√						
		桥梁结构电算		√			√									√		
		道路工程计算机辅助设计		√			√									√		√
		公路工程监理		√			√	√										
		桥梁施工技术		√				√	√									√
		大跨度桥梁			√				√						√			√
		钢桥			√				√						√			
		道路施工技术		√				√	√									√
√		涉外工程			√				√						√			√
√		浮桥工程			√				√						√			√
		地下工程及施工控制技术			√				√						√			
		军事训练	√			√												
		认识实习	√	√	√		√		√									√
		地质实习		√			√		√		√							√
		测量实习		√			√		√		√							√
		建筑材料综合实验		√	√													√
		道路勘测设计课程设计		√	√										√			
		道路勘测实习		√													√	

专业 核心 课程	专业 特色 课程	课程名称	道路桥梁与渡河工程专业（卓越工程师班）毕业要求															
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		混凝土结构课程设计		√	√										√			
		桥梁工程——桥梁方案课程设计		√	√										√		√	
		基础工程课程设计		√											√		√	
		钢结构课程设计		√											√	√	√	
		桥梁工程——结构计算课程设计		√											√	√	√	
		路基路面工程课程设计		√											√		√	
		岗位实习	√	√	√	√							√	√	√	√	√	√
		毕业设计（论文）	√	√	√		√	√	√				√	√	√	√	√	√

三、课程教学进程图

III Teaching Process Map

四、理论教学建议进程表

IV Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Ope-ration	实践 Prac-tice	课外 Extra-cur				
通 识 课 程 Public Basic Courses	必修课程 Required Courses	4220001111	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6			
		4220002111	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6			
		4220003111	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6			
		4220005111	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6			
		1060003131	军事理论 Military Theory	1	32			16		1			
		4210001111	体育 1 Physical Education I	1	32					1			
		4210002111	体育 2 Physical Education II	1	32					2	体育 1		
		4210003111	体育 3 Physical Education III	1	32					3	体育 2		
		4210004111	体育 4 Physical Education IV	1	32					4	体育 3		
		1050001131	心理健康教育 Mental Health Education	1	16					1			
		4030002111	大学英语 A1 College English A 1	3	64				16	1			
		4030003111	大学英语 A2 College English A II	3	64				16	2	大学英语 A1		
		4030004111	大学英语 A3 College English A III	3	64				16	3	大学英语 A2		
		4030005111	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3		
		4120017111	大学计算机基础 Foundation of Computer	2	32		12			1			
		程序设计语言课程组(三选一, 3 学分)											
		4120023111	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48			12			2		
		4120024111	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48			12			2		
		4120025111	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48			12			2		
		小 计 Subtotal				35	736		24	64	64		
	选修课程 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses			全校学生要求至少取得 9 个学分, 且必须选修艺术体育类课程中的艺术类相关课程, 取得至少 2 个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程, 其他专业学生至少选修一门科学技术类课程。 All students are required to obtain at least 9 credits, and must select art courses from Art and Physical Education Courses to obtain at least 2 credits. Science and engineering students should select at least one course from Arts and Social Science Courses or Economy and Management Courses, and other students should select at least one course from Science and Technology Courses.								
		人文社科类 Arts and Social Science Courses											
		经济管理类 Economy and Management Courses											

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope- ration	实践 Prac- tice	课外 Extra- cur			
科学技术类 Science and Technology Courses												
艺术体育类 Art and Physical Education Courses												
学 科 大 类 课 程 Basic Disciplinary Courses	必修 Required Courses	4140248111	专业导论 Introduction to the Program	1	16					1		
		4180017111	工程图学 B Engineering Graphics B	4	64		4			1		
		4050063111	高等数学 A 上 Advanced Mathematics A1	5	80					1		
		4050064111	高等数学 A 下 Advanced Mathematics A2	5	80					2	高等数学 A 上	
		4140126111	理论力学 B Theoretical Mechanics B	3	48					2		
		4050024111	大学物理 Physics B	5	80					2		
		4050224111	物理实验 Physics Lab. B	1	32	32				2	大学物理 B	
		4050229111	线性代数 Linear Algebra	2.5	40					2		
		4050254111	运筹学 Operational Research	3	48					3	线性代数	
		4050058111	概率论与数理统计 B Probability and Mathematical Statistics B	3	48					3		
		4100012111	电工与电子技术基础 C Fundamentals of Electrical Engineering & Electric Technology C	4	64	10				3		
		4140356131	测量学 Measurement Theory	3	48	6				3		
		小 计 Subtotal			39.5	648	48	4				
	选修 Elective Courses	4140115111	交通运输工程经济 Engineering Economics of Transportation	2	32					3		
		4140113111	交通运输工程概论 A An Introduction to Transportation Engineering A	2	32					3		
		4140124111	可持续发展的交通运输 Sustainable Transportation	2	32					3		
		4140107111	交通信息与数据库技术 Traffic Information and Database Technique	2	32					3		
		4140143111	土木工程施工 B Construction of Civil Engineering B	2	32					3		
		4140052111	道桥景观设计 Landscape Design for Highway and Bridge	2	32					3		
		4140406131	虚拟运输企业商务管理 Virtual transport enterprise business management	2	32					4		
		4140136111	商务函电 Business Correspondence	2	32					5		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学分 Cr	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140083111	轨道工程 Rail Engineering	2	32					6		
		小 计 Subtotal		18	288							
		修读说明：要求至少选修 6 学分。 NOTE: Minimum subtotal credits:6										
专 业 课 程	必修课程 Required Courses	4140004111	材料力学 C Materials Mechanics C	4	64	4				4	高等数学 A 下	
		4140065111	工程地质 A Engineering Geology A	2.5	40	4				4		
		4140043111	道路建筑材料 A Road Construction Materials A	3	48					4	材料力学 C	
		4140049111	道路勘测设计 A Highway Survey and Design A	4	64					4		
		4140120111	结构力学 B Structure Mechanics B	5	80					5	材料力学 C	
		4140090111	混凝土结构 Concrete Structures Theory Structural	4	64					5	材料力学 C	
		4140141111	土力学 A Soil Mechanics A	3.5	56	6				5	材料力学 C	
		4140131111	桥涵水文 A Hydrology of Bridge and Culvert A	2	32					5	概率论与数理统计 B	
		4140055111	钢结构 Steel Structures	2	32					6	结构力学 B	
		4140092111	基础工程 A Infrastructure Engineering A	2.5	40					6	结构力学 B	
		4140415131	路基路面工程 A Subgrade and Pavement Engineering A	4	64	6				6	土力学 A	
		4140132111	桥梁工程 A Bridge Engineering A	4.5	72					6	结构力学 B /混凝土结构	
		4140137111	公路施工组织与概预算 Construction Organizing and Budgeting	2	32					7 (企业)	混凝土结构/桥梁工程 A	
		小 计 Subtotal		43	688	20						
	选修课程 Elective Courses	4140134111	桥梁结构电算 Structural analysis of Bridge	2.5	40		24			6	结构力学 B	
		4140272121	道路工程计算机辅助设计 Highway CAD	2.5	40		24			6	道路勘测设计 A	
		4140068111	工程监理概论 Introduction to Engineering Supervision	2	32					6		
		4140487131	桥梁施工技术 Bridge Constructions	2.5	40					7 (企业)	桥梁工程 A	
		4140164111	大跨度桥梁 Long-Span Bridges	2	32					7	桥梁工程 A	
		4140057111	钢桥 Steel Bridges	2	32					7	桥梁工程 A	
		4140488131	道路施工技术 Construction of Highway	2.5	40					7 (企业)	路基路面工程 A	

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课 程 名 称 Course Title	学 分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4140313121	涉外工程 Overseas civil engineering	2	32					7（企业）	施工组织与概预算	
		4140489131	地下工程及施工控制技术 Underground Engineering and Construction	2.5	40					7（企业）	工程地质 A / 结构力学 B	
		小 计 Subtotal		22.5	360		48	0	0			
		修读说明：要求至少选修 14.5 学分 NOTE: Minimum subtotal credits:15										

五、集中性实践教学环节

V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002111	军事训练 Military Training	3	1.5	1	
4140425131	认识实习 Practice of Recognition	0.5	0.5	4（企业）	
4140198111	地质实习 Geology Practice	1	1	4（企业）	
4140180111	测量实习 B Survey Practice B	2	2	4（企业）	
4140210111	建筑材料综合实验 Integrated Experiments of Construction	1	1	4(分散)	
4140373131	道路勘测设计课程设计 Course Design on Road Survey Design	1	1	5	
4140196111	道路勘测实习 Road Survey Practice	3	3	5（企业）	
4140410131	混凝土结构课程设计 Course Design on Concrete Structure	1	1	6	
4140419131	桥梁工程——桥梁方案课程设计 Course Design on Bridge Scheme of Bridge Engineering	1	1	6	
4140207111	基础工程课程设计 Course Design on Foundation Engineering	1	1	6	
4140199111	钢结构课程设计 Course Design on Steel Structure	1	1	7	
4140418131	桥梁工程——结构计算课程设计 Course Design on Bridge Structural Computation	1	1	7	
4140416131	路基路面工程课程设计 Course Design on Subgrade and Pavement Engineering	1	1	7	
4140431131	岗位实习 Internship	6	6	7(企业)	
4070175111	毕业设计（论文） Graduation Thesis	17	11	8(企业)	
小 计 Subtotal		40.5	33		

六、修读指导

VI Recommendations on Course Studies

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

学院教学责任人：王丽铮
专业培养方案责任人：刘 芳