

# 土木工程专业辅修培养方案

## Undergraduate Programme for minor of Civil Engineering

### 一、培养目标 Objectives

面向国家重大需求，坚持学校“双严”传统，培养理论基础扎实、专业知识宽厚、具有创新能力和国际视野、能够引领交通土建领域未来发展的领军及高级专门人才。毕业生应德、智、体、美、劳全面发展，具有深厚的历史底蕴和广阔的国际视野，较强的社会担当和健全的人格修养，积极的创新精神和严谨的批判思维，良好的人文情怀和扎实的科学素养，高尚的职业操守和优秀的专业才能。毕业生掌握土木工程学科的基本原理和专业知识，获得工程师的良好训练，具备较强的实践能力，能在铁道与道路、城市轨道交通、桥梁、隧道、房屋建筑、岩土工程领域大型土木工程项目中从事规划、勘测、设计、施工、维护和管理工作的。

To meet the major demands of the country, we carry on the tradition of rigorous scholarship and strict requirement to cultivate leaders and senior professionals with solid theoretical foundation, broad professional knowledge, innovative ability and international vision, who can lead the future development of transportation and civil engineering. Our graduates have a strong sense of social responsibility, good professional ethics, humanistic sentiments, scientific literacy, innovative spirit and critical thinking ability. With enhanced training and practice, they are well acquainted with the basic principles and professional knowledge in civil engineering, and are able to engage in the planning, surveying, design, construction, maintenance, research and management of large-scale civil engineering projects in the fields such as railway and road, urban rail transit, bridge, tunnel, housing construction and geotechnical engineering.

### 二、培养要求 Requirement

要求学生基本掌握土木工程专业基础知识，具备扎实的专业基础和土木工程勘测设计、施工、设施维护的基本技能与方法。培养学生成为具有扎实专业知识和高质量的工程技术、规划设计、建设管理、科学研究的复合型人才。

Students are required to master the basic knowledge of civil engineering, have solid professional foundation and basic skills and methods of civil engineering survey and design,

construction and facility maintenance. To train students to become compound talents with solid professional knowledge and high quality in engineering technology, planning and design, construction management and scientific research.

### 三、前置课程 Pre course

辅修土木工程专业的学生,应先完成以下课程学习:《高等数学 I》、《高等数学 II》、《线性代数 B》、《概率论与数理统计》、《理论力学 B》、《材料力学 AI》、《材料力学 BII》、《工程测量 I》、《工程测量 II》、《土木工程地质》、《土木工程制图与信息模型 I》、《土木工程制图与信息模型 II》。

Students majoring in civil engineering should first complete the following courses: Advanced Mathematics I, Advanced Mathematics II, Linear Algebra B, Probability Theory and Mathematical Statistics, Theoretical Mechanics B, Mechanics of Materials AI, Mechanics of Materials BII, Engineering Surveying I, Engineering Surveying II, Civil Engineering Geology, Civil Engineering Drafting and Information Modeling I, Civil Engineering Drafting and Information Modeling II.

### 四、学分要求 Credits Requirements

修学本专业的必修课(见:课程设置,共计43学分),成绩合格,并符合《本科生辅修专业修读及辅修学位授予管理办法》规定者,可颁发本专业辅修证书。学制要求:学制不超过2年(从申请修读辅修专业起)。

A minor bachelor's certificate can be awarded to those who have completed the required courses (see: curriculum design, 43 credits in total) and have passed the examination, and meet the requirements of the administrative measures for the granting of minor majors and minor degrees for undergraduates. Length of schooling: no more than 2 years (from the application for minor major).

### 五、课程设置 Course Programs

课程类型 Course Type	课程名称 Course Name	课程性质 Category of Course	总学分 Credits	开课学期 Semester	开课学院 School	备注 Notes
专业基础课 Professional Foundational Courses	结构力学 AI Structural Mechanics AI	必修 Compulsory	4	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	结构力学 AII-B Structural Mechanics AII-B	必修 Compulsory	2	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
	土力学 Soil Mechanics	必修 Compulsory	3	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	

<b>专业基础课 Professional Foundational Courses</b>		基础工程 Foundation Engineering	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		土木工程材料 Civil Engineering Materials	必修 Compulsory	3	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
		工程流体力学 A Engineering Fluid Mechanics A	必修 Compulsory	3	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
		混凝土结构设计原理 Design Principles of Concrete Structures	必修 Compulsory	4	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
		钢结构原理 Principles of Steel Structures	必修 Compulsory	3	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
		工程可靠度设计原理 Design Principle of Engineering Reliability	必修 Compulsory	1	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		土木工程经济与项目管理 Economic and Project Management of Civil Engineering	必修 Compulsory	3	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
<b>专业核心课程 Specialized Core Courses</b>	<b>轨道交通工程 方向模块 Railway Engineering Specialty Direction Module</b>	选线设计 Railway Location Design	必修 Compulsory	4	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		路基工程 A Subgrade Engineering A	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		轨道工程 A Track Engineering A	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		轨道交通桥梁与高架工程 Rail Transit Bridges and Elevated Engineering	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		轨道交通地下工程 Underground Engineering of Rail Transit	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	<b>桥梁工程方 向模块 Bridge Engineering Specialty Direction Module</b>	桥梁工程导论 Introduction to Bridge Engineering	必修 Compulsory	2	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
		钢桥及组合桥梁 Steel Bridges and Composite Bridges	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		混凝土桥 Concrete Bridges	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		缆索承重桥梁 Cable Support Bridges	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		桥梁智能与绿色建筑 Bridge Intelligence and Green Construction	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		桥渡设计 Bridge Crossing Design	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	

专业核心课程 Specialized Core Courses	地下工程方向模块 Underground Engineering Specialty Direction Module	地下工程导论 Introduction to Underground Engineering	必修 Compulsory	2	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
		山岭隧道 Mountain Tunnels	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		地下铁道 Metro	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		水下隧道 Underwater Tunnels	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		地下结构设计原理 Design Principles for Underground Structure	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	建筑工程方向模块 Building Engineering Specialty Direction Module	房屋建筑学 Building Architecture	必修 Compulsory	2	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
		建筑结构设计 A Design of Building Structures A	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		高层建筑结构设计原理 Design Principles of High-Rise Building Structural	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		建筑结构抗震 Seismic for Building Structures	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		建筑工程施工 Building Construction Engineering	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		房屋钢结构 Steel Structures of Building	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	岩土工程方向模块 Geotechnical Engineering Specialty Direction Module	岩土工程导论 Introduction to Geotechnical Engineering	必修 Compulsory	2	秋季学期 Fall semester	土木工程学院 School of Civil Engineering	
		岩土工程勘察及现场测试技术 Geotechnical Engineering Investigation and In-situ Test Technique	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		地基处理 Ground Treatment	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		边坡工程 Slope Engineering	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
		岩石力学 Rock Mechanics	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	

<b>道路工程方向模块 Road Engineering Specialty Direction Module</b>	道路勘测设计 Road Survey and Design	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	路基路面工程 Sub-grade and Pavement Engineering	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	道路工程材料 Road Engineering Materials	必修 Compulsory	3	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	交通工程 Transportation Engineering	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	桥梁工程 Bridge Engineering	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
	隧道工程 Tunnel Engineering	必修 Compulsory	2	春季学期 Spring semester	土木工程学院 School of Civil Engineering	
<b>总学分 Credits</b>			43			

## 六、选课说明

每位学生必须完整修读一个自己选修专业方向的专业方向模块课程，即必修 14 学分。