

土木工程专业 2021 版本本科培养方案

Education Program for Undergraduates Majored in Civil Engineering (2021)

专业名称	土木工程	主干学科	土木工程
Major	Civil Engineering	Major Disciplines	Civil 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	土木类	大类培养年限	1 年
Disciplinary	Civil Engineering	Duration	1 year

最低毕业学分规定

Minimum Credits Required for Graduation

课程分类 Course Classification 课程性质 Course Nature	公共基础课程 Public Basic Courses	通识教育课程 Public Courses	大类课程 Basic Courses in General Discipline	专业教育课程 Specialized Courses	个性课程 Personalized Course	专业教育集中性实践教学环节 Specialized Practice Schedule	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	31	\	42	17	\	26	10	180
选修课 Elective Courses	\	9	\	28	6	\	10	

一、培养目标与毕业要求

I Educational Objectives & Graduation Requirements

(一) 培养目标 Educational objectives

本专业通过思想品德、人文素养、职业规范、专业知识、工程实践能力和职业发展能力的工程教育和工程训练，培养社会经济发展需要、适用能力强、实干精神强、创新意识强的土木工程技术卓越人才。学生毕业 5 年左右达到以下目标：

- (1) 具有良好的思想品德、人文素养和职业规范操守，具有严谨求实、公正无私的工程师品质，能发扬实干精神，能主动承担社会责任并积极服务于社会。
- (2) 具有宽厚的土木工程专业基础知识和理论，掌握系统化的专业技能，具有卓越的工程实践能力和创新应用能力，在土木工程技术或管理工作岗位作为骨干发挥重要作用。
- (3) 具有良好的团队合作意识和团队领导力，能综合利用先进技术手段和方法深入分析和解决复

杂工程问题。

(4) 能适应社会发展及变革，注重土木工程行业与社会、环境和可持续发展的关系，具有国际化视野，富有创新精神和创新能力，能推动土木工程行业的创新发展。

Through the professional education and comprehensive training of morality, humanistic quality, professional norms, professional knowledge, practical ability and professional development ability, the program will produce excellent engineers with strong adaptable ability, pragmatic spirit, innovative consciousness in civil engineering to meet the needs of social and economic development. after 5 years after graduation, graduates will achieve the following goals:

1. be with morality, humanistic quality and engineering professional ethics, with rigorous, realistic and impartial quality of the engineers, can carry forward the spirit of hard work and take the initiative to undertake social responsibility and actively serve the community;
2. master profound basic knowledge and theory of civil engineering, be with systematic professional skills and excellent ability of engineering practice and innovation, be competent for civil engineering industry application or management work as a technical backbone;
3. be with strong spirit of teamwork and leadership, have the ability to employ multiple technical approaches to solve complex engineering problems;
4. fully understand the relationship between the civil engineering industry and the environment and society; have an international perspective, able to promote the innovation and development of the civil engineering industry with innovative spirit and creative ability.

(二) 毕业要求 **Graduation Requirements**

1 工程知识：能够将数学、自然科学、工程基础和专业知用于解决土木工程专业的复杂工程问题。

2 问题分析：能够应用数学、自然科学和工程科学的基本原理，识别、表达、并通过文献研究分析土木工程专业的复杂工程问题，以获得有效结论。

3 设计（开发）解决方案：能够设计（开发）满足土木工程特定需求的体系、结构、构件（节点）或者施工方案，并在设计环节中考虑社会、健康、安全、法律、文化以及环境等因素。在提出复杂工程问题的解决方案时具有创新意识。

4 研究：能够基于科学原理、采用科学方法对土木工程专业的复杂工程问题进行研究,包括设计实验、收集、处理、分析与解释数据，通过信息综合得到合理有效的结论。

5 使用现代工具：能够针对复杂工程问题,开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具,包括对复杂工程问题的预测与模拟,并能够理解其局限性。

6 工程与社会：能够基于土木工程相关的背景知识和标准，评价土木工程项目的设计、施工和运

行的方案，以及复杂工程问题的解决方案，包括其对社会、健康、安全、法律以及文化的影响,并理解土木工程师应承担的责任。

7 环境和可持续发展：能够理解和评价针对土木工程专业的复杂工程问题的工程实践对环境、社会可持续发展的影响。

8 职业规范：了解中国国情、具有人文社会科学素养、社会责任感，能够在工程实践中理解并遵守工程职业道德和行为规范，做到责任担当、贡献国家、服务社会。

9 个人和团队：在解决土木工程专业的复杂工程问题时，能够在多学科组成的团队中承担个体、团队成员或负责人的角色。

10 沟通：能够就土木工程专业的复杂工程问题与业界同行及社会公众进行有效沟通和交流,包括撰写报告和设计文稿、陈述发言、表达或回应指令。具备一定的国际视野，能够在跨文化背景下进行沟通和交流。

11 项目管理：在与土木工程专业相关的多学科环境中理解、掌握、应用工程管理原理与经济决策方法，具有一定的组织、管理和领导能力。

12 终身学习:具有自主学习和终身学习的意识,具有提高自主学习和适应土木工程新发展的能力。

1. Engineering knowledge: Able to use the knowledge of mathematics, natural sciences, engineering fundamentals and expertise to solve complex engineering problems in civil engineering.
2. Problem analysis: Apply the basic principles of mathematics, natural and engineering science in identifying, formulating, and analyzing complex civil engineering problems to obtain valid conclusions.
3. Design (develop) solution: Design (develop) systems, structures, components (nodes) or construction plans that meet the specific requirements of civil engineering projects. Take social, health, safety, law, culture and environment factors into account in the design process. With innovative awareness when proposing solutions to complex engineering problems.
4. Research: Study complex engineering problems based on scientific principles and scientific methods, including design experiments, collection, processing, analysis and interpretation of data. Obtain reasonable and valid conclusions through information synthesis and apply it in engineering practice.
5. Use modern tools: Develop, select and use appropriate technologies, resources, modern engineering tools, and information technology tools for complex engineering problems, including the prediction and simulation of complex engineering problems and understanding their limitations.
6. Engineering and society: Evaluate the design, construction and operation of civil engineering projects, as well as solutions to complex engineering problems according to knowledge and codes of civil engineering including their impact on society, health, safety, law and culture. Understand the responsibilities of Civil Engineers.
7. Environment and sustainable development: Able to understand and evaluate the impact of complex

civil engineering practice on environmental and social sustainable development.

8. Professional norms: Understand China's national conditions. Learn good humanities and social science literacy, social responsibility. Understand and comply with engineering ethics and codes of conduct in engineering practices. Fulfill responsibility, contribute to the country and serve the society.
9. Individuals and teams: Undertake the roles of individuals, team members, or leaders in a multidisciplinary team in solving complex engineering problems.
10. Communication: Communicate effectively with industry colleagues and the public on complex engineering issues, including writing reports and design manuscripts, making statements, expressing or responding to directives. Have a certain international perspective and be able to communicate in a cross-cultural context.
11. Project management: Understand, master, apply engineering management principles and economic decision-making methods in a multidisciplinary environment related to civil engineering. Have some organizational, management and leadership skills.
12. Life-long learning: Have independent learning and lifelong learning consciousness. Be able to improve self-learning and adapt to the new development of civil engineering.

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
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				√

二、专业核心课程与专业特色课程

II Core Courses and featured Courses

(一) 专业核心课程 Major Core Courses:

材料力学，结构力学，土力学，工程与建筑制图，工程地质，土木工程材料，混凝土结构设计原理，钢结构设计原理，基础工程，混凝土结构与砌体结构设计（建工方向），桥梁工程（道桥方向），岩体力学与工程（岩土方向），土木工程施工（建工方向），桥梁施工技术（道桥方向），地下工程施工（岩土方向），卓越工程师现场实习（建工、道桥方向），联合培养实习（岩土方向），毕业设计（论文）。

Material Mechanics, Structural Mechanics, Soil Mechanics, Engineering and Building Drawing, Engineering Geology, Materials in Civil Engineering, Design Principles of Concrete Structure, Design Principle of Steel Structures, Foundation Engineering, Concrete and Masonry Structural Design, Bridge Engineering, Rock Mass Mechanics and Engineering, Civil Engineering Construction, Bridge Construction Techniques, Construction of Underground Engineering, Filed Practice for Excellent Engineers, Joint Practice for Excellent Engineers, Graduation project(Thesis).

(二) 专业特色课程 Major Featured Courses:

感知结构概念，定性结构力学，防灾减灾及防护工程概论，土木工程创新方法与应用。

Seeing and Touching Structural Concepts, Qualitative Structural Mechanics, Introduction to Disaster Prevention and Mitigation and Protective Engineering, Innovative Techniques and Applications in Civil 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	土木工程专业毕业要求											
			1	2	3	4	5	6	7	8	9	10	11	12
		思想道德修养与法律基础						H		H				H
		中国近现代史纲要						H		H				H
		毛泽东思想和中国特色社会主义理论体系概论						H		H				H
		马克思主义基本原理						H		H				H
		军事理论										H		

专业 核心 课程	专业 特色 课程	课程名称	土木工程专业毕业要求													
			1	2	3	4	5	6	7	8	9	10	11	12		
		军事技能训练											H			
		体育 1-4											H			H
		大学英语 1-4							H				H	H		
		C 程序设计基础		H												
		计算机基础与 C 程序设计综合实验		H				H								
		专业导论	H			H							H			H
		环境科学概论			H					H						
√		工程与建筑制图		H												
		高等数学 A	H													
		线性代数	H													
		普通化学 B	H													
		普通化学实验 C	H													
		工程测量		H				H								
		大学物理 A 上/下	H													
		物理实验 A 上/下	H													
		理论力学 B	H													
√		材料力学 C	H													
		概率论与数理统计 B	H													
√		土木工程材料				H				H						
√		工程地质 C	H													
		流体力学 E	H													
√		结构力学 A1/A2	H	H												
√		土力学 B	H			H										
		土力学实验 A				H	H									
		土木工程试验原理				H										
		工程荷载与可靠度设计原理	H		H											
√		基础工程 B	H		H											
		工程经济学 C			H										H	
		工程项目管理 C							H		H				H	

专业 核 心 课程	专业 特 色 课程	课程名称	土木工程专业毕业要求											
			1	2	3	4	5	6	7	8	9	10	11	12
		工程建设法规 B			H			H						
		土木工程材料与结构实验 B				H	H							
		土木工程认识实习						H	H					
		测量实习 B					H				H			
		工程地质实习 B		H					H					
		土木工程创新创业实践			H						H			H
		土木工程毕业实习									H	H		
√		毕业设计（论文）		H		H	H					H		H
		心理健康教育									H			
		形势与政策									H			H
		房屋建筑学 D		H	H									
√		混凝土结构设计原理 C	H		H									
		钢结构实验 B				H	H							
√		钢结构设计原理	H		H									
		建筑工程软件应用					H							
√		土木工程施工						H					H	
√		混凝土结构与砌体结构设计		H	H									
		钢结构与组合结构设计		H	H									
		建筑工程概预算 B											H	
		建筑抗震设计原理 B			H				H					
		建筑振动测试技术实验				H	H							
		高层建筑结构设计			H				H					
		房屋建筑学课程设计 B			H									
		混凝土建筑结构课程设计 1			H									
		混凝土建筑结构课程设计 2			H									
		建筑钢结构课程设计			H									
		建筑施工课程设计			H									
		建筑工程概预算课程设计			H									
√		卓越工程师现场实习 B		H							H	H	H	

专业 核 心 课程	专业 特 色 课程	课程名称	土木工程专业毕业要求											
			1	2	3	4	5	6	7	8	9	10	11	12
		道路勘测设计 B		H										
√		混凝土结构设计原理 B	H		H									
√		钢结构设计原理 B	H		H									
		桥梁工程软件应用					H							
		路基路面工程 C		H	H									
√		桥梁工程 C		H	H									
		桥梁抗震设计			H				H					
√		桥梁施工技术						H					H	
		公路工程施工组织与概预算											H	
		公路工程测试技术 B				H								
		公路工程测试技术实验			H	H								
		混凝土桥梁结构课程设计			H									
		道路勘测课程设计			H									
		桥梁钢结构课程设计			H									
		桥梁工程课程设计			H									
		路基路面工程课程设计 C			H									
		公路工程施工组织与概预算课程设计			H									
√		卓越工程师现场实习 A		H						H	H	H		
		土木工程 CAD		H			H							
√		混凝土设计原理 C	H		H									
√		岩体力学与工程			H									
		岩土测试与监测				H								
		岩土测试与监测实验				H	H							
		岩土工程勘察 A1/A2		H										
		地基处理 A			H				H					
		地下建筑结构 B			H									
√		地下工程施工 A						H						
		岩土工程计算软件 B					H							
		深基坑工程							H					

专业 核 心 课 程	专业 特 色 课 程	课程名称	土木工程专业毕业要求											
			1	2	3	4	5	6	7	8	9	10	11	12
		岩土地震工程			H					H				
		工程爆破课程设计			H									
		基础工程课程设计			H									
		岩土力学实验（中科院岩土所）				H	H							
		地基处理课程设计			H									
		地下建筑结构课程设计			H									
		深基坑工程课程设计			H									
		联合培养实习（中科院岩土所）		H						H	H	H		
	√	感知结构概念		L										
	√	防灾减灾及防护工程概论 A							L					
		弹性力学与有限元方法 B						L						
		土木工程近似方法						L						
		土木工程专业英语阅读与写作										L		
		岩土开挖工程爆破 B							L					
	√	土木工程创新方法及应用			L									
		钢桥 A			L									
		桥涵水文 B			L									
		隧道工程 C			L									
	√	定性结构力学		L								L		
		工程结构概率建模与安全性评估						L						
		BIM 技术原理及应用						L						
		大跨度结构			L									
		建筑结构选型 A			L									
		大跨度桥梁设计			L									
		边坡工程	L											
		特种基础工程			L									
		智能建筑概论						L						
		装配式建筑概论			L									
		通识选修核心课程	文明和传统类（均可）						L					L

三、课程教学进程图

III Teaching Process Map

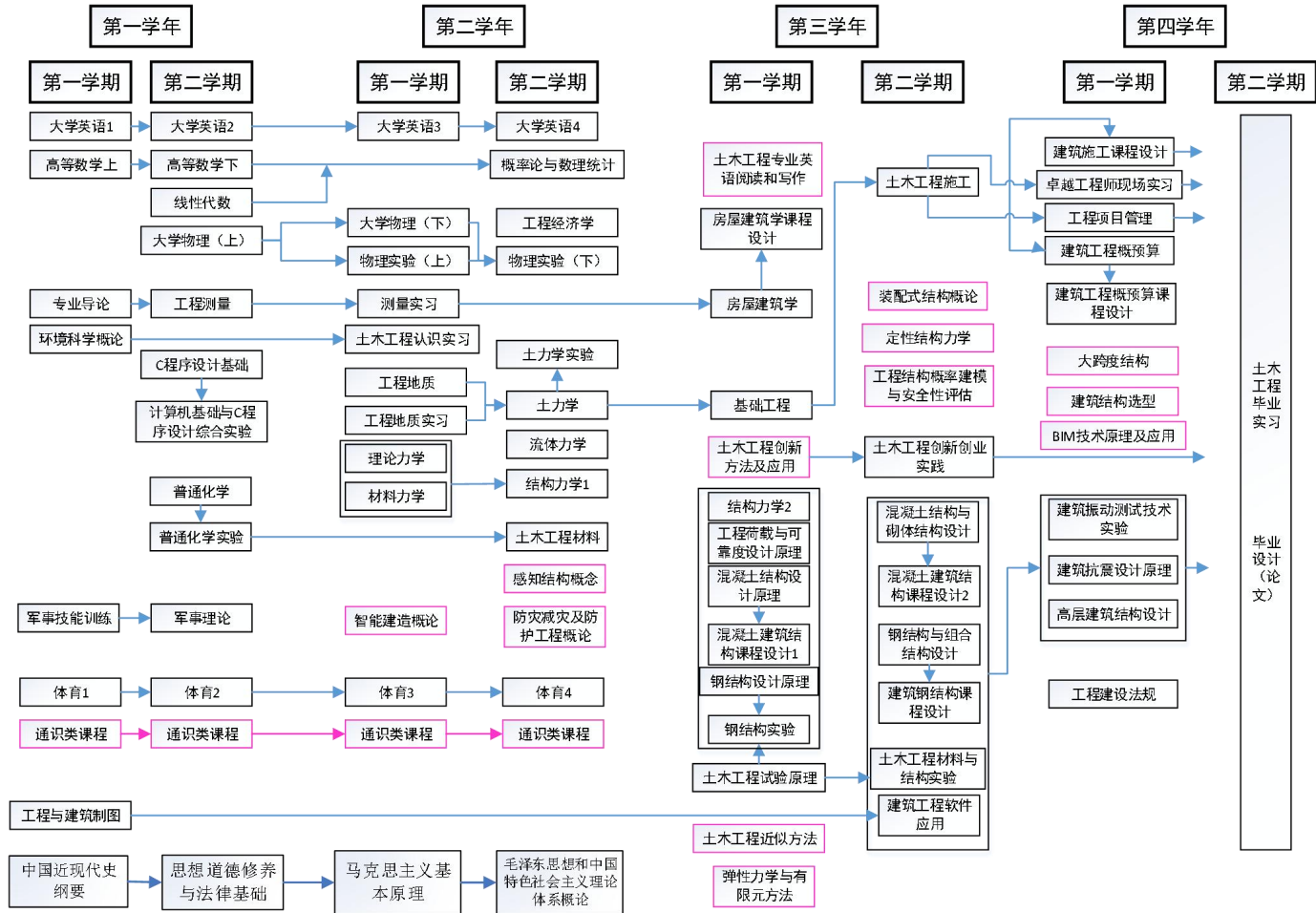


图 1 土木工程专业建筑工程方向课程进程图

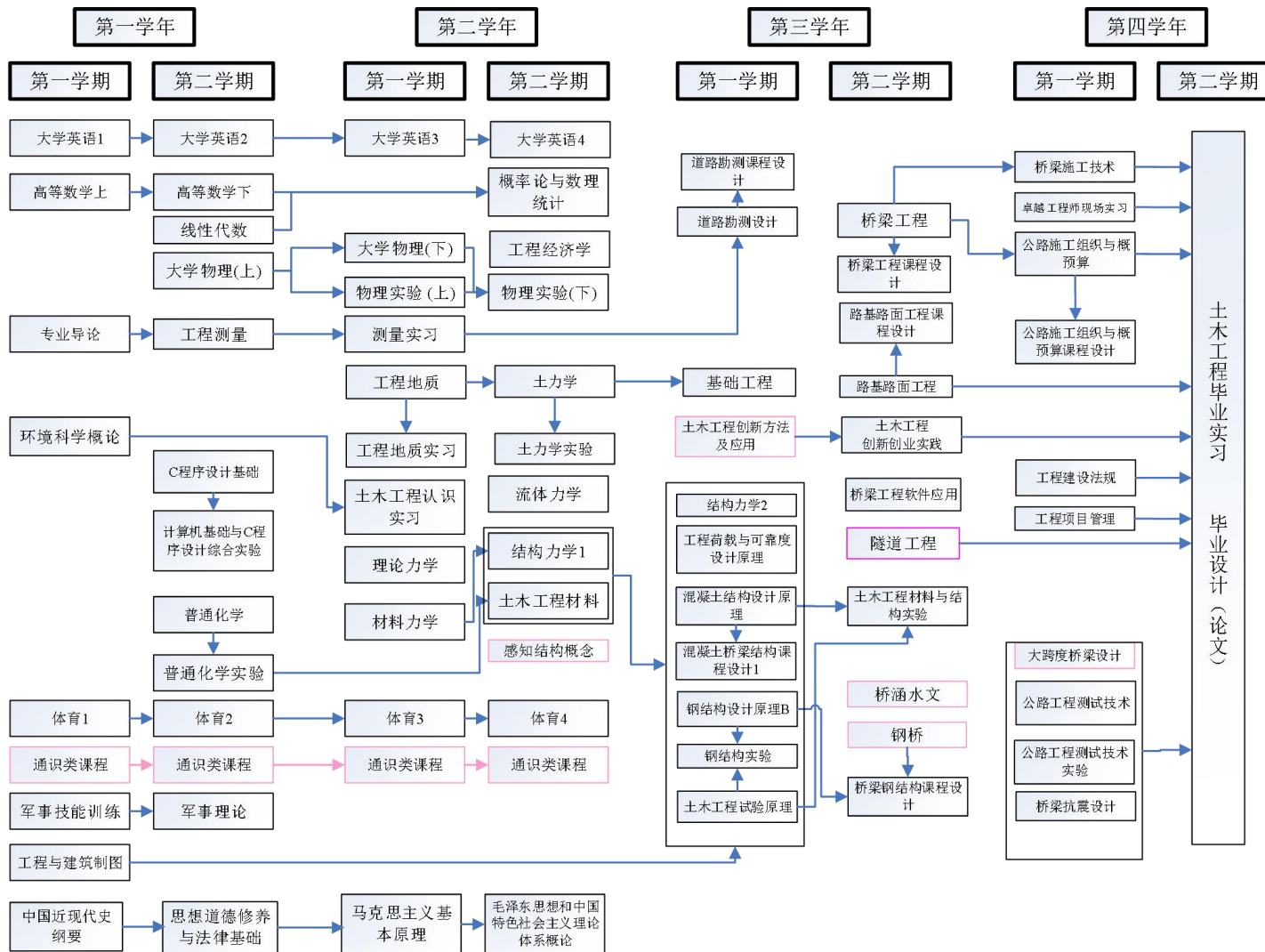


图2 土木工程专业道路与桥梁工程方向课程教学进程图

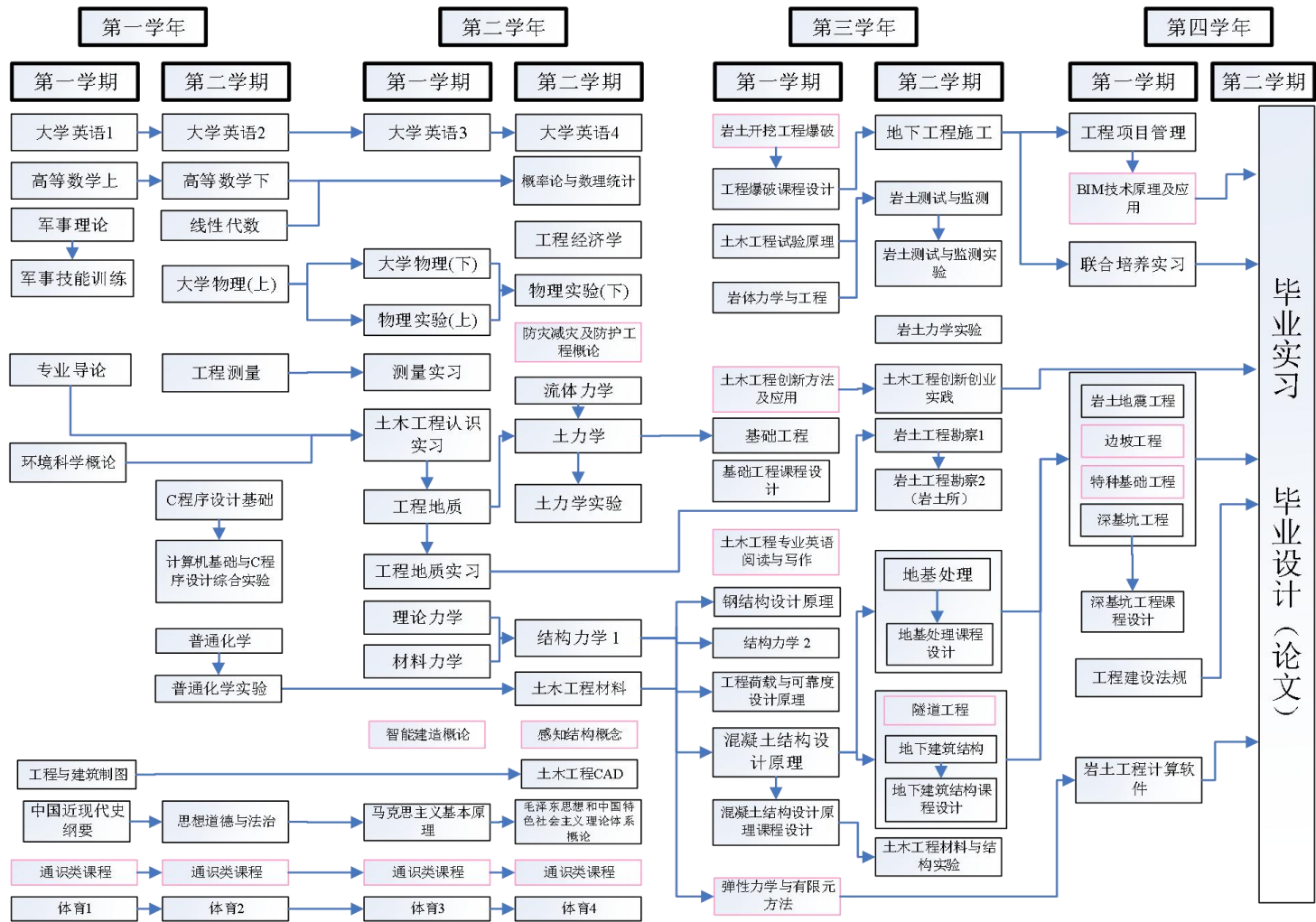


图3 土木工程专业岩土工程方向课程教学进程图

四、 理论教学建议进程表

IV Theory Course Schedule

(一) 公共基础必修课程											
1 Public Basic Compulsory Courses											
开课单位 Course college	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 Sugge sted Term	先修课程 Prerequisite Course
				总学 时 Tot hrs.	理论 Theo ry	实验 Exp.	上机 Ope- ratio n	实践 Prac- tice	课外 Extra -cur		
马克思主义学院 School of Marxism	4220001210	思想道德与法治 Morality and the rule of law	2.5	42	42					2	
马克思主义学院 School of Marxism	4220002180	中国近现代史纲要 Outline of Contemporary and Modern History of China	2.5	42	42					1	
马克思主义学院 School of Marxism	4220003180	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	4.5	66	66					4	
马克思主义学院 School of Marxism	4220005180	马克思主义基本原理 Marxism Philosophy	2.5	42	42					3	
学工部 Department of Student Affairs	1050002210	军事理论 Military Theory	2	32	32					2	
学工部 Department of Student Affairs	1050001210	军事技能训练 Military Skill Training	2	136				136		1	
体育部 Department of Physical Education	4210001170	体育 1 Physical Education I	1	32	32					1	

体育部 Department of Physical Education	4210002170	体育 2 Physical Education II	1	32	32					2	
体育部 Department of Physical Education	4210003170	体育 3 Physical Education III	1	32	32					3	
体育部 Department of Physical Education	4210004170	体育 4 Physical Education IV	1	32	32					4	
外语学院 School of Foreign Languages	4030001210	大学英语 1 College English 1	2	48	32				16	1	A、B 级学生 修读
外语学院 School of Foreign Languages	4030002210	大学英语 2 College English II	2	48	32				16	2	A、B 级学生 修读
外语学院 School of Foreign Languages	4030003210	大学英语 3 College English III	2	48	32				16	2 或 3	A、B 级学生 修读
外语学院 School of Foreign Languages	4030004210	大学英语 4 College English IV	2	48	32				16	3 或 4	A、B 级学生 修读
计算机学院 School of Computer Science and Technology	4120002210	C 程序设计基础 B Programming (C)	2	32	32					2	
计算机学院 School of Computer Science and Technology	4120006210	计算机基础与 C 程序设计综合实 验 B Comprehensive experiment of computer foundation and C program design B	1	32		32				2	
小 计 Subtotal			31	744	512	32	0	136	64		

(二) 通识教育选修课程 2 General Education Elective Courses	
核心选修 Core elective courses	文明与传统类 Civilization and Tradition Courses
	社会与发展类 Society and Development Courses
	艺术与人文类 Art and Humanities Courses
	自然与方法类 Nature and methods Courses
自主选修 Self-selected courses	<p>数学与自然科学、哲学与心理学、学与社会学、经济与管理、历史与文化、语言与文学、艺术与审美、创新与创业 Mathematics and Natural Sciences, Philosophy and Psychology, Science and Social Sciences, Economics and Management, History and Culture, Language and Literature, Art and Aesthetics, Innovation and Entrepreneurship</p>

通识课程应修满至少 9 学分。核心选修不少于 2 学分；自主选修课程中，至少在艺术与审美、创新与创业两个领域各选修 1 门课程。
核心选修课程必选《生命科学概论》。
Core elective courses ≥ 2 credits.
Self-selected courses, at least 1 course in art and aesthetics and 1 course in innovation and entrepreneurship.
Core elective courses must take 《Introduction of Life Science》.

(三) 大类必修课程 3 Basic Discipline Required Courses										
土建学院 School of Civil Engineering and Architecture	4130369130	专业导论 Introduction to Civil Engineering	1.5	24	24				1	
土建学院 School of Civil Engineering and Architecture	4130568170	环境科学概论 Introduction to Environmental Science	1	16	16				1	
土建学院 School of Civil Engineering and Architecture	4130567170	工程与建筑制图 Engineering and Building Cartography	3	48	48				1	
理学院 School of Science	4050001210	高等数学 A 上 Advanced Mathematics I	4.5	72	72				1	
理学院 School of Science	4050002210	高等数学 A 下 Advanced Mathematics II	5.5	88	88				2	高等数学 A1
理学院 School of Science	4050229110	线性代数 Linear Algebra	2.5	40	40				2	

化生学院 School of Chemistry, Chemical Engineering and Life Sciences	4200306120	普通化学 B General Chemistry B	2.5	40	40					2	
化生学院 School of Chemistry, Chemical Engineering and Life Sciences	4200372170	普通化学实验 C General Chemistry Experiment C	0.5	16		16				2	
土建学院 School of Civil Engineering and Architecture	4130047110	工程测量 C Engineering Survey C	2	32	24	8				2	
理学院 School of Science	4050021110	大学物理 A 上 College Physics I	3.5	56	56					2	
理学院 School of Science	4050022110	大学物理 A 下 College Physics II	3.5	56	56					3	大学物理 1
理学院 School of Science	4050466130	物理实验 A 上 Physics Experiment. I	1	32		32				3	大学物理 1
理学院 School of Science	4050467130	物理实验 A 下 Physics Experiment. II	1	32		32				4	大学物理 2
理学院 School of Science	4140126111	理论力学 B Theoretical Mechanics C	3	48	48					3	
理学院 School of Science	4050018110	材料力学 C Material Mechanics C	4	64	60	4				3	
理学院 School of Science	4050058110	概率论与数理统计 B Probability theory and Mathematical Statistics B	3	48	48					4	
小 计 Subtotal			42	712	620	92	0	0	0		
(四) 专业必修课程 4 Specialized Required Courses											

土建学院 School of Civil Engineering and Architecture	4130200110	土木工程试验原理 Principles of Civil Engineering Test	1	16	16					5	
土建学院 School of Civil Engineering and Architecture	4130001200	工程荷载与可靠 度设计原理 Engineering load and principles of reliability design	1	16	16					5	材料力学, 结构力学
土建学院 School of Civil Engineering and Architecture	4130082110	基础工程 B Foundation Engineering B	2	32	28			4		5	
小 计 Subtotal			17.5	288	264	20	0	4	0		
(五) 专业选修课程 5 Specialized Elective Courses											
建筑工程方向课程模块											
土建学院 School of Civil Engineering and Architecture	4130630170	房屋建筑学 D House Architecture D	2	32	32					5	
土建学院 School of Civil Engineering and Architecture	4130080110	混凝土结构设计 原理 C Fundamentals of Concrete Structure Design C	3.5	56	56					5	材料力学, 结构力学
土建学院 School of Civil Engineering and Architecture	4130694170	钢结构实验 B Experiments of Steel Structures B	1	32		32				5	钢结构设计 原理
土建学院 School of Civil Engineering and Architecture	4130035770	钢结构设计原理 Design Principles of Steel Structures	2.5	40	40					5	材料力学, 结构力学

土建学院 School of Civil Engineering and Architecture	4130695170	建筑工程软件应用 Application of Building Engineering Softwares.	1	32					32		6	混凝土结构设计原理
土建学院 School of Civil Engineering and Architecture	4130016880	土木工程施工 Civil Engineering Construction	3	48	48						6	混凝土结构设计原理，钢结构设计原理
土建学院 School of Civil Engineering and Architecture	4130643170	混凝土结构与砌体结构设计 Concrete and Masonry Structural Design	2.5	40	40						6	混凝土结构设计原理
土建学院 School of Civil Engineering and Architecture	4130696170	钢结构与组合结构设计 Steel and Composite Structural Design	2	32	32						6	钢结构设计原理
土建学院 School of Civil Engineering and Architecture	4130644170	建筑工程概预算 B Building Engineering Budget B	1.5	24	24						7	工程经济学，土木工程施工
土建学院 School of Civil Engineering and Architecture	4130697170	建筑抗震设计原理 B Principles of Building Seismic Design B	1.5	24	24						7	结构力学
土建学院 School of Civil Engineering and Architecture	4130645170	建筑振动测试技术实验 Experiment of Building Vibration Measurement Technology	0.5	16				16			7	建筑抗震设计原理
土建学院 School of Civil Engineering and Architecture	4130037110	高层建筑结构设计 Structural Design of High-rise Buildings	2	32	32						7	结构力学，混凝土结构与砌体结构设计
土建学院 School of Civil	4130602170	工程经济学 B Engineering	1	16	16						4	

Engineering and Architecture		Economics B									
土建学院 School of Civil Engineering and Architecture	4130065110	工程项目管理 C Construction Project Management C	1	16	16					7	
土建学院 School of Civil Engineering and Architecture	4130640170	工程建设法规 B Construction Regulations B	1	16	16					7	
土建学院 School of Civil Engineering and Architecture	4130342120	土木工程材料与结构实验 B Experiments on Civil Engineering Materials and Structures B	2	64		64				6	
小 计 Subtotal			28	520	376	112	32	0	0		
道路与桥梁工程方向课程模块											
土建学院 School of Civil Engineering and Architecture	4130646170	道路勘测设计 B Road Alignment Design B	2.5	40	40					5	工程测量
土建学院 School of Civil Engineering and Architecture	4130741170	混凝土结构设计原理 B Design Principles of Concrete Structures B	3.5	56	56					5	材料力学, 结构力学
土建学院 School of Civil Engineering and Architecture	4130003200	钢结构设计原理 B Design Principles of Steel Structures B	2.5	40	40					5	材料力学, 结构力学
土建学院 School of Civil Engineering and Architecture	4130694170	钢结构实验 B Experiments of Steel Structures B	1	32		32				5	钢结构设计原理
土建学院 School of Civil Engineering and Architecture	4130699170	桥梁工程软件应用 Application of Bridge Engineering Software	1	32			32			6	

土建学院 School of Civil Engineering and Architecture	4130332120	路基路面工程 C Subgrades and Pavement Engineering C	2.5	40	40					6	道路勘测设计, 土力学, 基础工程
土建学院 School of Civil Engineering and Architecture	4130647170	桥梁工程 C Bridge Engineering C	4	64	64					6	混凝土结构设计原理, 基础工程
土建学院 School of Civil Engineering and Architecture	4130701170	桥梁抗震设计 Seismic Design of Bridges	1.5	24	24					7	桥梁工程
土建学院 School of Civil Engineering and Architecture	4130165110	桥梁施工技术 Bridge Construction Techniques	1.5	24	24					7	桥梁工程
土建学院 School of Civil Engineering and Architecture	4130648170	公路工程施工组织与概预算 Construction Organization and Budget of Highway engineering	1.5	24	24					7	道路勘测设计, 路基路面工程, 桥梁工程
土建学院 School of Civil Engineering and Architecture	4130368120	公路工程测试技术 B Inspection Techniques of Highway Engineering	1	16						7	路基路面工程, 桥梁工程
土建学院 School of Civil Engineering and Architecture	4130369120	公路工程测试技术实验 Exp. for Testing Techniques of Highway Engineering	0.5	16		32				7	
土建学院 School of Civil Engineering and Architecture	4130602170	工程经济学 B Engineering Economics B	1	16	16					4	
土建学院 School of Civil Engineering and Architecture	4130065110	工程项目管理 C Construction Project Management C	1	16	16					7	

土建学院 School of Civil Engineering and Architecture	4130640170	工程建设法规 B Construction Regulations B	1	16	16					7	
土建学院 School of Civil Engineering and Architecture	4130342120	土木工程材料与 结构实验 B Experiments on Civil Engineering Materials and Structures B	2	64		64				6	
小 计 Subtotal			28	520	360	128	32	0	0		
岩土方向课程模块											
土建学院 School of Civil Engineering and Architecture	4130650170	土木工程 CAD Computer Aided Design for Civil Engineering	1	32			32			4	
土建学院 School of Civil Engineering and Architecture	4130080110	混凝土结构设计 原理 C Design Principles of Concrete Structures C	3.5	56	56					5	材料力学， 结构力学
土建学院 School of Civil Engineering and Architecture	4130665170	岩体力学与工程 B Rock Mass Mechanics and Engineering B	2	32	32					5	工程地质
土建学院 School of Civil Engineering and Architecture	4130003200	钢结构设计原理 Design Principles of Steel Structures	2.5	40	40					5	材料力学
土建学院 School of Civil Engineering and Architecture	4130674170	岩土测试与监测 C Testing and Monitoring Techniques of Geotechnical Engineering C	1.5	24	24					6	基础工程
土建学院 School of Civil Engineering and Architecture	4130666170	岩土测试与监测 实验 B Experiment For Testing and Monitoring	0.5	16		16				6	岩土测试与 监测

		Techniques of Geotechnical Engineering B								
土建学院 School of Civil Engineering and Architecture	4130667170	岩土工程勘察 A1 Geotechnical Engineering Investigation A1	1.5	24	24				6	工程地质
土建学院 School of Civil Engineering and Architecture	4130668170	岩土工程勘察 A2 Geotechnical Engineering Investigation A2	0.5	16			16		6	岩土工程勘察 A 1
土建学院 School of Civil Engineering and Architecture	4130018110	地基处理 A Ground Treatment A	2	32	32				6	基础工程
土建学院 School of Civil Engineering and Architecture	4130669170	地下建筑结构 B Underground Building structures B	1.5	24	24				6	土木工程材料与结构实验
土建学院 School of Civil Engineering and Architecture	4130670170	地下工程施工 A Construction of Underground Engineering A	2.5	40	40				6	工程测量
土建学院 School of Civil Engineering and Architecture	4130671170	岩土工程计算机软件 B Numerical Software of Geotechnical Engineering B	1	32			32		7	土力学
土建学院 School of Civil Engineering and Architecture	4130655170	深基坑工程 Deep Foundation Engineering	1.5	24	24				7	基础工程
土建学院 School of Civil Engineering and Architecture	4130464130	岩土地震工程 Geotechnical Seismic Engineering	1.5	24	24				7	土力学
土建学院 School of Civil Engineering and Architecture	4130602170	工程经济学 B Engineering Economics	1	16	16				4	
土建学院 School of Civil Engineering and	4130065110	工程项目管理 C Construction Project	1	16	16				7	

Architecture		Management									
土建学院 School of Civil Engineering and Architecture	4130640170	工程建设法规 B Construction Regulations	1	16	16					7	
土建学院 School of Civil Engineering and Architecture	4130342120	土木工程材料与 结构实验 B Experiments on Civil Engineering Materials and Structures	2	64		64				6	
小 计 Subtotal			28	528	368	80	64	16	0		

修读说明：根据所选专业方向，完整修读上述其中一个方向的课程模块，取得 28 个学分。

NOTE: Minimum subtotal credits:28.

(六) 个性课程

6 Personalized Elective Courses

土建学院 School of Civil Engineering and Architecture	4130656170	感知结构概念 Seeing and Touching Structural Concepts	1.5	24	24					4	理论力学, 材料力学
土建学院 School of Civil Engineering and Architecture	4130024110	防灾减灾及防护 工程概论 A Overview of Disaster Prevention and Mitigation and Protective Engineering A	1.5	24	24					4	
土建学院 School of Civil Engineering and Architecture	4130651170	弹性力学与有限 元方法 B Elastic Mechanics and Finite Element Method B	2	32	32					5	
土建学院 School of Civil Engineering and Architecture	4130343120	土木工程近似方 法 Numerical Computations in Civil Engineering	1.5	24	24					5	
土建学院 School of Civil Engineering and	4130700170	土木工程专业英 语阅读与写作 Academic English	1.5	24	24					5	

Architecture		Reading and Writing for Civil Engineering									
土建学院 School of Civil Engineering and Architecture	4130672170	岩土开挖工程爆破 B Geotechnical Excavation Engineering Blasting	1.5	24	24					5	土力学
土建学院 School of Civil Engineering and Architecture	4130597170	土木工程创新方法及应用 Novel Techniques and Their Applications in Civil Engineering	1.5	24	24					5	
土建学院 School of Civil Engineering and Architecture	4130441130	钢桥 A Steel Bridge A	1.5	24	24					6	钢结构设计原理
土建学院 School of Civil Engineering and Architecture	4130161110	桥涵水文 B Hydrology of Bridge and Culvert B	1.5	24	24					6	
土建学院 School of Civil Engineering and Architecture	4130192110	隧道工程 C Tunnel Engineering C	1.5	24	24					6	基础工程, 土力学
土建学院 School of Civil Engineering and Architecture	4130023110	定性结构力学 Qualitative Structural Mechanics	1.5	24	24					6	材料力学, 结构力学
土建学院 School of Civil Engineering and Architecture	4130444130	工程结构概率建模与安全性评估 Probabilistic Modeling and Safety Assessment of Engineering Structures	1	16	16					6	概率论与数理统计
土建学院 School of Civil Engineering and Architecture	4130598170	BIM 技术原理及应用 Fundamentals and Application of BIM Technology	1	32				32		7	

土建学院 School of Civil Engineering and Architecture	4130012110	大跨度结构 Long Span Structures	1.5	24	24					7	钢结构设计
土建学院 School of Civil Engineering and Architecture	4130112110	建筑结构选型 A Structural Form Selection	1.5	24	24					7	房屋建筑学
土建学院 School of Civil Engineering and Architecture	4130013110	大跨度桥梁设计 Long-span Bridge Design	1.5	24	24					7	桥梁工程
土建学院 School of Civil Engineering and Architecture	4130002110	边坡工程 Slope Engineering	1.5	24	24					7	土力学
土建学院 School of Civil Engineering and Architecture	4130193110	特种基础工程 Special Fundamental Engineering	1.5	24	24					7	基础工程
土建学院 School of Civil Engineering and Architecture		智能建造概论 Introduction to Intelligent Construction	1.5	24	24					3	
土建学院 School of Civil Engineering and Architecture		装配式结构概论 Introduction to Assembled Structures	1.5	24	24					6	
小 计 Subtotal			29.5	488	456	0	32	0	0		

修读说明：学生从以上个性课程和学校发布的其它个性课程目录中选课，要求至少选修 6 学分，其中本专业所列个性课程至少选修 4.5 学分；《装配式结构概论》为全英文授课。

NOTE: Students can select courses from above and the other personalized courses in catalog and are required to obtain at least 6 credits.

In addition, students must achieve 4.5 credits by taking courses in their major direction. Course 《Introduction to assembled structures》 is delivered in English.

(七) 专业教育集中性实践教学环节

Specialized Practice Schedule

开课单位 Course college	课程编号 Course Number	实践环节名称 Practice Courses Name	学分 Crts	总学时 Tot hrs.	周数 Weeks	建议修读学期 Suggested Term	先修课程 Prerequisite Course
土建学院 School of Civil Engineering and Architecture	4130301110	土木工程认识实 习 Cognition Practice of Civil	1	16	1	3	

		Engineering					
土建学院 School of Civil Engineering and Architecture	4130233110	测量实习 B Practice of Engineering Survey B	2	32	2	3	
土建学院 School of Civil Engineering and Architecture	4130355120	工程地质实习 B Practice of Engineering Geology	1	16	1	3	
土建学院 School of Civil Engineering and Architecture		土木工程创新创 业实践 Innovation Practice in Civil Engineering	1	16	1	6	
土建学院 School of Civil Engineering and Architecture	4130702170	土木工程毕业实 习 Graduation Internship of Civil Engineering	1	16	1	8	
土建学院 School of Civil Engineering and Architecture	4130703170	毕业设计（论文） Graduation Project Design (thesis)	8.5	272	17	8	
建筑方向课程模块							
土建学院 School of Civil Engineering and Architecture	4130240110	房屋建筑学课程 设计 B Course project of House Architecture	1	16	1	5	
土建学院 School of Civil Engineering and Architecture	4130704170	混凝土建筑结构 课程设计 1 Course project of Concrete Buildings Structure I	1	16	1	5	
土建学院 School of Civil Engineering and Architecture	4130705170	混凝土建筑结构 课程设计 2 Course project of Concrete Buildings Structure II	1	16	1	6	

土建学院 School of Civil Engineering and Architecture	4130706170	建筑钢结构课程 设计 Course project of Steel Buildings Structure	1	16	1	6	
土建学院 School of Civil Engineering and Architecture	4130272200	建筑施工课程设 计 Course project of Civil Engineering Construction	1	16	1	7	
土建学院 School of Civil Engineering and Architecture	4130660170	建筑工程概预算 课程设计 Course Project of Building Engineering Budget	1	16	1	7	
土建学院 School of Civil Engineering and Architecture	4130663170	卓越工程师现场 实习 B Field Practice for Outstanding Engineers B	6	96	6	7	
道路与桥梁方向课程模块							
土建学院 School of Civil Engineering and Architecture	4130707170	混凝土桥梁结构 课程设计 C Course Project of Concrete Structure Bridge C	1	16	1	5	
土建学院 School of Civil Engineering and Architecture	4130235110	道路勘测课程设 计 Course Project of Road Alignment	1	16	1	5	
土建学院 School of Civil Engineering and Architecture	4130708170	桥梁钢结构课程 设计 Course Project of Steel Bridge Structure	1	16	1	6	
土建学院 School of Civil Engineering and Architecture	4130284110	桥梁工程课程设 计 Course Project of Bridge Engineering	1	16	1	6	

土建学院 School of Civil Engineering and Architecture	4130356120	路基路面工程课 程设计 C Course Project of Highway Subgrades and Pavement Engineering C	1	16	1	6	
土建学院 School of Civil Engineering and Architecture	4130002200	公路工程施工组 织与概预算课程 设计 Course Project of Highway Engineering Construction Management and Budget	1	16	1	7	
土建学院 School of Civil Engineering and Architecture	4130360120	卓越工程师现场 实习 A Field Practice for Outstanding Engineers A	6	96	6	7	
岩土工程方向课程模块							
土建学院 School of Civil Engineering and Architecture	4130248110	工程爆破课程设 计 Course project of Engineering Blasting	1	16	1	5	
土建学院 School of Civil Engineering and Architecture	4130259110	基础工程课程设 计 Course project of Foundation Engineering	1	16	1	5	
土建学院 School of Civil Engineering and Architecture	4130465130	岩土力学实验 Experiments of soil Mechanics	1	16	1	6	
土建学院 School of Civil Engineering and Architecture	4130237110	地基处理课程设 计 Course project of Ground Treatment	1	16	1	6	
土建学院 School of Civil Engineering and	4130238110	地下建筑结构课 程设计 Course project of	1	16	1	6	

Architecture		Underground Building Structures					
土建学院 School of Civil Engineering and Architecture	4130675170	深基坑工程课程设计 Course project of Deep Foundation Engineering	1	16	1	7	
土建学院 School of Civil Engineering and Architecture	4130676170	联合培养实习 Specialty Practice for Excellent Engineers	6	96	6	7	
小 计 Subtotal			26.5	540	35		

五、 修读指导

V Recommendations on Course Studies

课外培养方案详见《武汉理工大学第二课堂课外学分实施办法》

《形势与政策》和《心理健康教育》课程为课外必修课程，分别记两个课外学分。

Please refer to the cultivation plan of the Second-Class Implementation Measures for Extracurricular credits of Wuhan University of Technology.

Situation & Policy(2 credits) and Mental Health Education(2 credits) are the required extracurricular courses

学院教学责任人：范小春
专业培养方案责任人：黄斌 康俊涛 芮瑞