

土木工程专业培养方案

Programme Specification for Civil Engineering with Transport

I. 专业介绍 Introduction

西南交通大学土木工程专业源于1896年成立的山海关北洋铁路官学堂，是本校最早设立的专业。在本专业120余年的发展历史上，秉承“百年土木，树人百年”的办学宗旨，已经为中国培养了茅以升、竺可桢、林同炎在内的3万余名土木英才，其中包括22位院士、22位全国勘察设计大师，铸就了“唐山土木”严谨治学、严格要求的优良传统。经过一代又一代土木人的不懈奋斗，西南交通大学土木工程专业以其卓越的成就、雄厚的实力，享誉中外。学生在大学一年级主要进行专业所需的数学、物理、外语等基础知识学习，从二年级到四年级则将受到力学、土木工程及交通工程等多方面的专业知识训练。本专业的培养方案不但注重理论学习，更强调专业技能与实践能力的培养，在专业知识学习期间将大量采用实践教学的方式培养学生的实际动手能力，引导学生在解决实际问题的过程中考虑各类技术与非技术性因素的影响，从而形成解决复杂工程问题的能力。本专业致力于培养和造就适应行业新形势、能够引领交通土建领域未来发展的领军及高级专门人才。

西南交大-利兹学院“土木工程”专业联合了上述两所大学相关专业的优势而设置。

The civil engineering programme of Southwest Jiaotong University originated from the Imperial Chinese Railway College at Shanhaiguan by Beiyang Railway Bureau, which was established in 1896. In the development history of this programme for more than 120 years, adhering to the purpose of "one hundred years of civil engineering, a hundred years of training people", we have trained more than 30,000 civil engineering talents for China, including Mao Yisheng, Zhu Kezhen and Lin Tung Yen. Among them, 22 academicians and 22 national survey and design masters have forged the fine tradition of rigorous scholarship and strict requirements of "Tangshan civil engineering". After the unrelenting struggle of generation after generation of civil engineers, the civil engineering programme of Southwest Jiaotong University is famous at home and abroad for its outstanding achievements and strong strength. The programme of civil engineering consists of seven specialties: railway engineering, bridge engineering, underground engineering, geotechnical engineering, structural engineering, road engineering and urban rail transit engineering. Students mainly study basic knowledge such as mathematics, physics and foreign languages in their freshmen, while they will be trained in mechanics, civil engineering and traffic engineering from sophomores to seniors. The training program of this programme not only pays attention to theoretical study, but also emphasizes the cultivation of professional skills and practical ability. During the study of professional knowledge, a large number of practical teaching methods will be adopted to cultivate students' practical ability, and to guide students to consider the influence of various technical and non-technical factors in the process of solving practical problems, so as to form the ability to solve complex engineering problems. This programme is committed to training and bringing up leading and senior professionals who can adapt to the new situation of the industry and can lead the future development in the field of civil and transportation engineering.

The "Civil Engineering with Transport" programme of Southwest Jiaotong University-Leeds College combines the advantages of the relevant programme of the two universities.

专业代码：081001H

Programme Code: 081001H

专业名称： 土木工程

Programme Name: Civil Engineering with Transport

II. 培养目标 Objectives

本专业培养掌握土木工程学科基础理论和基本知识，获得工程师良好训练，具有扎实的基础理论、宽厚的专业知识、较强的实践能力，具有继续学习能力、创新能力、研发能力、组织协调能力、家国情怀和国际视野的德智体美劳全面发展的高级专门人才。毕业生能在房屋建筑工程、道路与铁道工程、城市轨道交通工程、桥梁与隧道工程、岩土和市政工程等领域从事土木工程的规划、勘测、设计、施工、管理、科研、教育、投资和科技开发等工作。

This programme trains senior professionals who master the basic theory and basic knowledge of civil engineering discipline, receive good training as engineers, have solid basic theory, broad professional knowledge, strong practical ability, and have the ability to continue learning, innovation, research and development, organization and coordination, family and national feelings and international vision. Graduates can engage in civil engineering planning, survey, design, construction, management, scientific research, education, investment and scientific and technological development in the fields of housing construction engineering, road and railway engineering, urban rail transit engineering, bridge and tunnel engineering, and geotechnical and municipal engineering.

III. 专业毕业要求 Graduation Requirements

经过4年本科阶段的培养，毕业生应在“知识、能力、素养”方面达到以下要求：

1. **工程知识与问题分析：**系统地掌握解决土木工程领域复杂工程问题所需的数学、自然科学、工程基础和专业知识，并能够将相关知识应用于识别、表达、分析土木工程领域复杂工程问题，并获得有效结论。

1.1 能将数学、自然科学的知识用于土木工程问题的表达和描述；

1.2 能运用力学知识，针对土木工程问题建立数学物理模型并进行求解；

1.3 能将土木工程学科知识用于推演、分析复杂土木工程问题，识别和判断其中的关键环节；

1.4 能基于土木工程学科知识进行复杂土木工程问题解决方案的比较与综合，并借助相关研究成果，分析复杂土木工程问题的影响因素，获得有效结论。

2. **工程设计（开发）解决方案：**能根据工程项目的功能、特点、要求和实施条件，综合考虑社会、健康、安全、法律、文化、伦理、环境及可持续发展等因素，设计（开发）针对土木工程领域复杂工程问题的解决方案，并体现创新意识。

2.1 掌握全周期、全流程的土木工程基本设计（开发）方法和技术，了解影响设计目标和技术方案的各种因素；

2.2 能够针对土木工程的特定需求，完成单元（部件）的设计；

2.3 能够根据工程项目的需求与条件，开发适用的施工技术，编制可行的施工组织方案；

2.4 能够综合考虑社会、健康、安全、法律、文化、伦理、环境及可持续发展等制约因素的影响，提出优化设计方案，并具有创新意识。

3. **研究：**能够基于科学原理、采用科学方法，对土木工程领域复杂工程问题进行研究，包括设计实验方案、开展实验、采集数据、分析与解释数据、并通过信息综合得到合理有效的结论。

3.1 能够基于科学原理，通过文献研究或相关方法，调研和分析土木工程领域复杂工程问题的解决方案；

3.2 能够根据土木工程领域复杂工程问题的特征，选择研究路线，设计实验方案；

3.3 能够根据实验方案构建实验系统，开展实验并正确地采集实验数据，基于实验数据对实验结果进行分析和解释，并通过信息综合得到合理有效的结论。

4. 现代工具使用：能够针对土木工程领域复杂工程问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具，进行预测、模拟、测试、分析、评价等工作，并能够理解其局限性。

4.1 了解土木工程专业常用的现代仪器设备、信息技术工具、工程工具和模拟软件的使用原理和方法，并理解其局限性；

4.2 能够正确使用现代仪器设备、信息资源、工程工具和模拟软件，对土木工程领域复杂工程问题进行科学抽象、简化，开展模拟、测试和分析，综合判断结果的合理性，并具备二次开发能力。

5. 工程活动对社会、环境与可持续发展的影响：能对土木工程实践行为及复杂工程问题进行合理分析，理解和评价土木工程专业问题解决方案对环境、社会、健康、安全、法律、文化及可持续发展的影响。

5.1 了解土木工程行业的技术标准体系、知识产权、产业政策和法律法规，理解社会文化对土木工程活动的影响；

5.2 能分析和评价土木工程实践与环境、社会、健康、安全、法律、文化及可持续发展之间的相互影响，理解应承担的责任；

5.3 知晓和理解环境保护和可持续发展的理念和内涵，并能以此对土木工程专业实践全过程中可能对人类和环境造成的损害和隐患做出恰当的评价。

6. 职业规范：了解中国国情，具有良好的科学人文素养，自觉遵守职业道德和行为规范，认真履行土木工程师应承担的社会责任，做到责任担当、服务社会、贡献国家。

6.1 具有正确价值观和审美观，理解个人与社会的关系，了解中国国情；

6.2 具备诚实公正、诚信守则的职业道德和行为规范，在工程实践中自觉遵守；

6.3 勇于承担土木工程师对公众的安全、健康及环境保护的社会责任，在工程实践中自觉认真履行责任。

7. 个人和团队：具有团队协作的精神和能力，在解决土木工程领域复杂工程问题时，能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色，理解不同角色应承担的责任并遵守团队协作的规则，在团队中有效发挥作用。

7.1 具有良好的合作意识和协作精神，能够与团队其他成员有效沟通、有利于团队发挥协同效应；

7.2 根据在团队中的不同角色，能够在团队中独立或合作开展工作。

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

8.1 能就土木工程专业问题，以口头、文稿、图表、图形等方式，清晰、准确表达自己的观点或技术方案；

8.2 具有一定的国际视野，了解土木工程行业的国际发展趋势、研究热点，理解和尊重世界不同文化的差异性和多样性；

8.3 具备跨文化交流的语言和书面表达能力，能就土木工程专业问题，在跨文化背景下进行沟通和交流。

9. 项目管理：理解并掌握土木工程的项目管理原理与经济决策方法，并能在多学科环境及工程实践中应用。

9.1 了解土木工程项目全周期、全流程的资源流动模式，掌握土木工程项目中涉及的管理与经济决策方法；

9.2 能协调工程项目与环境、社会、文化等因素之间的关系，并在多学科环境下，运用工程管理与经济决策方来设计、开发土木工程项目解决方案。

10. **终身学习**：具有自主学习和终身学习的意识，通过自主选用适当的学习方法和途径，持续获取和应用新技术、新知识，适应土木工程行业的新发展。

10.1 能认识到自主和终身学习的必要性，具有追踪土木工程行业尤其是交通土建领域发展趋势的意识；

10.2 具有自主学习的能力，包括对技术问题的理解能力、归纳总结能力和提出问题的能力等，并不断更新拓展知识，以适应社会与土木工程行业发展的需求。

After four years undergraduate studies, the graduates shall meet the following requirements in aspects of “knowledge, ability and quality”:

1. **Engineering Knowledge and Problem Analysis**: The graduates shall be well grounded in the basics and professional knowledge of mathematics, natural science, engineering so that they can solve complex engineering problems. They shall be capable of applying relevant knowledge to the identification, statement and analysis of complex engineering problems in the field of civil engineering and then drawing effective conclusions.

1.1 Using mathematics and natural science knowledge to present and describe civil engineering problems;

1.2 Using mechanical knowledge to build mathematical physical models to solve civil engineering problems;

1.3 Using civil engineering knowledge in the deduction and analysis of complex civil engineering problems, and identifying the key links in the problems;

1.4 Comparing and synthesizing solutions to complex civil engineering problems based on civil engineering knowledge, analyzing influential factors of complex civil engineering problems with the help of relevant research results, and drawing effective conclusions.

2. **Engineering Design(Development) Solutions**: The graduates shall, according to the function, characteristics, requirements and implementation conditions of the projects, design and develop innovative solutions to complex engineering problems taking into full consideration the factors such as society, health, safety, law, culture, ethic, environment, sustainable development etc.

2.1 Commanding the basic design (development) methods and technologies in the whole cycle and process of civil engineering, and understanding various factors that affect the design objectives and technical schemes;

2.2 Designing units (components) according to specific requirements of the civil engineering projects;

2.3 Developing applicable construction skills and preparing feasible construction organization plans according to the requirements and conditions of the projects;

2.4 Proposing optimal design plans with innovative ideas after taking full consideration of the influential factors such as society, health, safety, law, culture, ethic, environment and sustainable development etc.

3. **Research**: The graduates shall research complex civil engineering problems based on scientific principles and methods, including designing experimental schemes, carrying out experiments, collecting data, analyzing and interpreting data, and obtaining reasonable and effective conclusions through information synthesis.

3.1 Investigating and analyzing solutions to complex civil engineering problems based on scientific principles through studying literature or other relevant methods;

3.2 Selecting research routes and designing experimental schemes according to the characteristics of complex civil engineering problems;

3.3 Establishing experimental system in accordance with the scheme, carrying out experiments and collecting data, analyzing and interpreting experimental results based on the data obtained, and drawing reasonable and effective conclusions through information synthesis.

4. **Use of Modern Tools**: The graduates shall be able to develop, select and use appropriate technologies,

resources, modern engineering tools and information technology tools to solve complex civil engineering problems, and to predict, simulate, test, analyze, and evaluate the same. They shall also understand the limitations of these tools.

4.1 Understanding the principles and methods in the use of modern instruments, information technology tools, engineering tools and simulation software commonly applied in civil engineering and knowing their limitations;

4.2 Correctly using modern instruments, information resources, engineering tools and simulation software to scientifically abstract and simplify complex civil engineering problems, carrying out simulation and tests, analyzing and judging the rationality of the results, and having the competence for secondary development.

5. Impact of Engineering Activities on Society, Environment and Sustainable Development: the graduates shall be able to reasonably analyze civil engineering practices and complex engineering problems, understand and evaluate the impact of civil engineering solutions on environment, society, health, safety, law, culture and sustainable development.

5.1 Knowing the technical standard system, intellectual property rights, industrial policies, laws and regulations of civil engineering, and understanding the impact of social culture on civil engineering activities;

5.2 Analyzing and evaluating the interaction between civil engineering practice and environment, society, health, safety, law, culture and sustainable development, and understanding the responsibilities;

5.3 Understanding the concept and connotation of environmental protection and sustainable development, and making an appropriate assessment of the damage and hidden dangers that may endanger human beings and the environment in the whole process of civil engineering practices.

6. Professional Ethics: The graduates shall understand China's national conditions, have good scientific and humanistic literacy, consciously observe professional ethics and norms, earnestly fulfill civil engineers' social responsibilities and serve the society and the country.

6.1 Having correct values and aesthetic concepts, and understanding the relationship between individuals and society and China's national conditions;

6.2 Having professional ethics and norms of integrity and fairness and consciously abiding by them in engineering practices;

6.3 Assuming civil engineers' social responsibilities for public safety, health and environmental protection and consciously fulfilling them in the engineering practices.

7. Individual and Team: The graduates shall have team-working spirit, play their respective roles as individual, team member and leader in a multi-disciplinary team in solving complex civil engineering problems, understand the different responsibilities assigned, and observe the teamwork rules.

7.1 Having a good sense and spirit of cooperation, effectively communicating with other members of the team and helping the team to give full play to the joint efforts;

7.2 Independently or collaboratively working in a team in accordance with their respective roles in the team.

8. Communication and Expression: The graduates shall be able to effectively communicate with their peers in the industry and the public on complex civil engineering problems, including writing reports and design documents, presentation, explicit expression or response to instructions. They shall have international vision and can communicate and exchange views with others from different cultural backgrounds.

8.1 Clearly and accurately expressing their own views and technical schemes on civil engineering issues in different means of communication.

8.2 Knowing the international development trends and research hot spots of civil engineering, understanding and respecting the differences and diversity of different cultures in the world;

8.3 Having the required language proficiency and writing skills for cross-culture communication, and communicating on civil engineering issues in the cross-culture background.

9. Project Management: The graduates shall understand and command project management principles and economic decision-making methods of civil engineering, and apply them in multi-disciplinary environment and

engineering practice.

9.1 Understanding the resource flow pattern in the whole cycle and process of civil engineering projects, and commanding management and economic decision-making methods involved in civil engineering projects;

9.2 Coordinating the relations between engineering projects and environment, society, culture and other disciplines, and using engineering management and economic decision-making methods to design and develop solutions for civil engineering project in a multi-disciplinary environment.

10. Lifelong Learning: The graduates shall be fully aware of the importance attached to autonomous and lifelong learning, continuously acquire and apply new technologies and knowledge to adapt to the new development trends in civil engineering with appropriate learning methods and approaches.

10.1 Recognizing the necessity of autonomous and lifelong learning and tracking the development trend of civil engineering, especially in the field of transportation infrastructure construction;

10.2 Having the ability of autonomous learning including comprehension of technical problems, summarization and proposal of problems. They shall constantly update and expand their knowledge to meet the requirements of the society and the development of civil engineering industry.

IV. 学制与学位 **Duration and Degree**

学制:

四年制 Duration: 4 Years

学位:

西南交通大学 Southwest Jiaotong University

工学学士 Degree: Bachelor of Engineering

利兹大学 University of Leeds

分级荣誉工学学士学位 Degree: Bachelor of Engineering with Classified Honours

V. 主干学科与专业核心课程 **Main Subject and Specialized Core Course**

主干学科: 土木工程、交通运输工程、力学

Main Subject: Civil Engineering, Traffic Engineering, Mechanics

专业核心课程: 物理1: 力学与波、物理2: 热学和电磁学、数学1、数学2、英语、工程数学与建模1、工程测量与施工技术、结构设计分析、材料性质: 水、土、钢、木、建筑与环境、集成设计项目1、土木工程材料2、结构分析1、结构设计1、水工程与岩土工程学、工程数学与建模2、集成设计项目2、道路工程、交通规划与建模、结构设计2、集成设计项目3、道路工程2、交通建模2、铁道工程、基础工程基本原理

Specialized Core Course: Physics 1: Mechanics and Waves, Physics 2: Thermodynamics and Electricity, Mathematics 1, Mathematics 2, English for Engineering, Engineering Mathematics and Modelling 1, Engineering Surveying and Construction Technology, Structural Design and Analysis, Properties of Materials: Water, Soil, Steel, Timber, Architecture and Environment, Integrated Design Project 1, Civil Engineering Materials 2, Structural Analysis 1, Structural Design 1, Water Engineering and Geotechnics, Engineering Mathematics and Modelling 2, Integrated Design Project 2, Highway Engineering, Transport Planning and Modelling, Structural Design 2, Integrated Design Project 3, Highway Engineering 2, Transport Modelling 2, Railway Engineering, Foundation Engineering Fundamentals

VI. 毕业学分基本要求 Basic Requirements of Credits for Graduation

课程体系 Curriculum System		学分要求 Credits Requirements						
		必修 Compulsory		限修 Distributional Electives		任选 Free Electives		小计 Subtotal
		理论 Theory	实践 Practice	理论 Theory	实践 Practice	理论 Theory	实践 Practice	
学科与专业基础课程 Discipline and Specialty Foundational Courses	数学与自然科学基础课 Foundational Courses on Mathematics and Natural Science (专业核心课程 Specialized Core Course)	16	2					18
	专业基础课 Professional Foundational Courses (专业核心课程 Specialized Core Course)	18	0					18
专业课程 Specialized Courses	专业核心课程 Specialized Core Course			40	44			84
实习实践教学 Practice Courses	专业实践 Specialty Practices	0	0					0
	毕业设计 Graduation Design	0	6					6
附加环节 Additional Part	跨学科课程 Interdisciplinary Courses					0	0	0
公共基础课程 Public Basic Courses	思想政治类 Ideological Politics Courses	15	2					17
	军事类 Military Courses	2	2					4
	体育类 Physical Education Courses		4					4
必修环节 Compulsory Part	大学生综合素质提升、学生体质达标测评 Comprehensive Quality Improvement Courses for College Students, Assessment of Students' Physical Fitness	0	0					0
总计 Total								151

VII. 课程设置细化表 Course Programs Table

学科与专业基础课程 Discipline and Specialty foundational Courses 共 36 学分，其中必修 36 学分，限选 0 学分，任选 0 学分 A total credits of 36, including 36 for compulsory courses, 0 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class Practice Credits	开课学期 Semester	开课学院 School	支撑毕业要求指标点 Indicators which Support Graduation Requirements	备注 Notes
数学与自然科学基础课 Foundational Courses on Mathematics and Natural Science (专业核心课程 Specialized Core Course)	物理 1: 力学与波 Physics 1: Mechanics and Waves	必修 Compulsory	4.5	1	第 1 学期 1St semester	利兹学院 SWJTU-Leeds Joint School		升级课程
	物理 2: 热学和电磁学 Physics 2: Thermodynamics and Electricity	必修 Compulsory	4.5	1	第 2 学期 2Nd semester	利兹学院 SWJTU-Leeds Joint School		升级课程
	数学 1 Mathematics 1	必修 Compulsory	4.5	0	第 1 学期 1St semester	利兹学院 SWJTU-Leeds Joint School		升级课程
	数学 2 Mathematics 2	必修 Compulsory	4.5	0	第 2 学期 2Nd semester	利兹学院 SWJTU-Leeds Joint School		升级课程
专业基础课 Professional Foundational Courses (专业核心课程 Specialized Core Course)	英语 English for Engineering	必修 Compulsory	18	0	第 1-2 学期 1St -2Nd semester	利兹学院 SWJTU-Leeds Joint School		升级课程
专业课程 Specialized Courses 共 84 学分，其中必修 0 学分，限选 84 学分（第 3,4 学期限选至少 5 门 30 学分，第 5,6 学期限选至少 6 门 30 学分，第 7,8 学期限选至少 5 门 24 学分），选修 0 学分 A total credits of 84, including 6 for compulsory courses, 78 for distributional electives and 0 for optional electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class Practice Credits	开课学期 Semester	开课学院 School	支撑毕业要求指标点 Indicators which Support Graduation Requirements	备注 Notes
专业核心课程 Specialized Core Course	工程数学与建模 1 Engineering Mathematics and Modelling 1	限修 Distributional	6	3	第 3-4 学期 3Rd-4Th semester	利兹学院 SWJTU-Leeds Joint School	1.1, 1.2, 1.3, 1.4, 2.4, 3.1, 3.3, 4.1, 4.2, 8.1, 9.1, 10.2	

工程测量与施工技术 Engineering Surveying and Construction Technology	限修 Distributional	6	4	第 3-4 学期 3Rd-4Th semester	利兹学院 SWJTU- Leeds Joint School	1.1, 1.4, 3.1, 4.1, 5.1, 7.1, 7.2, 8.1	
结构设计分析 Structural Design and Analysis	限修 Distributional	6	3	第 3-4 学期 3Rd-4Th semester	利兹学院 SWJTU- Leeds Joint School	1.1, 1.2, 1.3, 1.4, 2.2	
材料性质: 水、土、 钢、木 Properties of Materials: Water, Soil, Steel, Timber	限修 Distributional	6	3	第 3-4 学期 3Rd-4Th semester	利兹学院 SWJTU- Leeds Joint School	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2, 5.3, 7.1, 7.2, 8.1, 8.2, 8.3	
建筑与环境 Architecture and Environment	限修 Distributional	6	2	第 3-4 学期 3Rd-4Th semester	利兹学院 SWJTU- Leeds Joint School	2.4, 3.1, 5.1, 5.2, 5.3, 6.1, 7.1, 7.2, 8.1, 8.2, 8.3, 10.1, 10.2	
集成设计项目 1 Integrated Design Project 1	限修 Distributional	6	4	第 3-4 学期 3Rd-4Th semester	利兹学院 SWJTU- Leeds Joint School	2.1, 2.2, 4.1, 4.2, 7.1, 7.2, 8.1, 8.3	
土木工程材料 2 Civil Engineering Materials 2	限修 Distributional	3	1	第 5 学期 5Th semester	利兹学院 SWJTU- Leeds Joint School	1.1, 1.3, 2.3, 2.4, 3.1, 5.2, 5.3, 6.3, 7.1	
结构分析 1 Structural Analysis 1	限修 Distributional	3	1	第 5 学期 5Th semester	利兹学院 SWJTU- Leeds Joint School	1.1, 1.2, 1.3, 2.2	
结构设计 1 Structural Design 1	限修 Distributional	6	2	第 5 学期 5Th semester	利兹学院 SWJTU- Leeds Joint School	1.2, 1.3, 1.4, 2.2, 3.1, 4.1, 4.2, 5.1, 6.3, 8.1, 10.2	
水工程与岩土工程学 Water Engineering and Geotechnics	限修 Distributional	6	2	第 5-6 学期 5Th -6Th semester	利兹学院 SWJTU- Leeds Joint School	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 3.1, 4.1, 5.3, 8.1, 8.2, 8.3	
工程数学与建模 2 Engineering Mathematics and Modelling 2	限修 Distributional	6	3	第 5-6 学期 5Th -6Th semester	利兹学院 SWJTU- Leeds Joint School	1.1, 1.2, 1.3, 1.4, 2.4, 3.1, 3.3, 4.1, 4.2, 8.1, 9.1, 10.2	
集成设计项目 2 Integrated Design Project 2	限修 Distributional	6	3	第 5-6 学期 5Th -6Th semester	利兹学院 SWJTU- Leeds Joint School	1.2, 1.4, 2.1, 2.2, 2.3, 2.4, 4.1, 5.2, 5.3, 6.3	

专业核心课程 Specialized Core Course	道路工程 Highway Engineering	限修 Distributional	3	1	第 5 学期 5Th semester	利兹学院 SWJTU-Leeds Joint School	1.2, 2.2, 3.1, 4.1	
	交通规划与建模 Transport Planning and Modelling	限修 Distributional	3	1	第 6 学期 6Th semester	利兹学院 SWJTU-Leeds Joint School	1.1, 1.3, 2.1, 4.1, 8.1	
	结构设计 2 Structural Design 2	限修 Distributional	6	2	第 7-8 学期 7Th -8Th semester	利兹学院 SWJTU-Leeds Joint School	1.2, 1.3 1.4, 2.2, 2.3, 2.4, 3.1, 4.1, 6.3, 10.1, 10.2	
	结构分析 2 Structural Analysis 2	限修 Distributional	3	1	第 7 学期 7Th semester	利兹学院 SWJTU-Leeds Joint School	1.1, 1.2, 1.3, 2.2, 2.4, 3.1, 4.2, 8.1	
	集成设计项目 3 Integrated Design Project 3	限修 Distributional	9	4	第 7 学期 7Th semester	利兹学院 SWJTU-Leeds Joint School	1.2, 1.3, 1.4, 2.1, 2.2, 2.4, 3.1, 4.1, 4.2, 5.3, 6.1, 6.3, 7.1, 7.2, 8.1, 10.1, 10.2	
	道路工程 2 Highway Engineering 2	限修 Distributional	3	1	第 7 学期 7Th semester	利兹学院 SWJTU-Leeds Joint School	1.2, 2.2, 3.1, 4.1	
	交通建模 2 Transport Modelling 2	限修 Distributional	3	1	第 8 学期 8Th semester	利兹学院 SWJTU-Leeds Joint School	1.1, 1.3, 4.1, 8.1	
	铁道工程 Railway Engineering	限修 Distributional	3	1	第 7 学期 7Th semester	利兹学院 SWJTU-Leeds Joint School	1.4, 2.2, 5.3, 6.1, 6.3	
	基础工程基本原理 Foundation Engineering Fundamentals	限修 Distributional	3	1	第 8 学期 8Th semester	利兹学院 SWJTU-Leeds Joint School	1.1 1.3 1.4 2.1 2.2 2.3 2.4 4.1 4.2 5.1 5.2 6.1 6.2 6.3 8.1 8.2 8.3 9.2 10.1 10.2	
实习实践教学 Practice Course 共 6 学分，其中必修 6 学分，限选 0 学分，任选 0 学分 A total credits of 6, including 6 for compulsory courses, 0 for distributional electives and 0 for free electives								

课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践 学分 In-class Practice Credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
专业实践 Specialty Practices	数学应用与实践 Application and Practice of Mathematics	必修 Compulsory	0	0	短 1 学期 Short Semester 1	利兹学院 SWJTU-Leeds Joint School		
	土木工程认识实习 Cognition Practice for Civil Engineering	必修 Compulsory	0	0	短 1 学期 Short Semester 1	利兹学院 SWJTU-Leeds Joint School	2.4、5.2、6.2、6.3	
	英语进阶 Advanced English	必修 Compulsory	0	0	短 2 学期 Short Semester 2	利兹学院 SWJTU-Leeds Joint School		
	土木工程地质实习 Geological Practice for Civil Engineering	必修 Compulsory	0	0	短 2 学期 Short Semester 2	利兹学院 SWJTU-Leeds Joint School	5.2、5.3、7.1、7.2	
	生产实习 Production Practice for Civil Engineering	必修 Compulsory	0	0	短 3 学期 Short Semester 3	利兹学院 SWJTU-Leeds Joint School	5.2、5.3、6.2、6.3、7.1、7.2、9.1、10.1、10.2	
毕业设计 Graduation Design	个性化研究项目 1 Individual Research Project 1	必修 Compulsory	6	6	第 7-8 学期 7Th -8Th semester	利兹学院 SWJTU-Leeds Joint School	1.4、2.1、2.2、2.4、3.1、3.2、3.3	
附加环节 Additional Part 共 0 学分，其中必修 0 学分，限选 0 学分，任选 0 学分 A total credits of 0, including 0 for compulsory courses, 0 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践 学分 In-class Practice Credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
跨学科课程 Interdisciplinary Courses	工程沟通与交流技巧 Engineering Communication Skills	必修 Compulsory	3	0	第 3-4 学期 3Rd -4Th semester	利兹学院 SWJTU-Leeds Joint School		不做毕业学分要求
	工程沟通与交流技巧 2 Engineering Communication Skills 2	必修 Compulsory	1.5	0	第 5-6 学期 5Th-6Th semester	利兹学院 SWJTU-Leeds Joint School		不做毕业学分要求
公共基础课程 Public Basic Courses 共 25 学分，其中必修 25 学分，限选 0 学分，任选 0 学分 A total credits of 25, including 25 for compulsory courses, 0 for distributional electives and 0 for free electives								

课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践 学分 In-class Practice Credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
思想政治类 Ideological Politics Courses	思想道德修养与法律基础 The Ideological and Moral Cultivation and Legal Basis	必修 Compulsory	3	0.4	第 1 学期 1St semester	马院 School of Marxism		
	中国近现代史纲要 Conspectus of Chinese Modern History	必修 Compulsory	3	0.4	第 2 学期 2 Nd semester	马院 School of Marxism		
	马克思主义基本原理 The Basic Principles of Marxism	必修 Compulsory	3	0.4	第 3 学期 3Rd semester	马院 School of Marxism		
	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 Theoretical System of Socialism with Chinese Characteristics	必修 Compulsory	3	0.4	第 5 学期 5Th semester	马院 School of Marxism		
	习近平新时代中国特色社会主义思想概论 Outline of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	必修 Compulsory	3	0.4	第 6 学期 6Th semester	马院 School of Marxism		
	形势与政策 I Situation and Policy I	必修 Compulsory	0	0	第 1 学期 1St semester	马院 School of Marxism		
	形势与政策 II Situation and Policy II	必修 Compulsory	0	0	第 2 学期 2Nd semester	马院 School of Marxism		
	形势与政策 III Situation and Policy III	必修 Compulsory	0	0	第 3 学期 3Rd semester	马院 School of Marxism		
	形势与政策 IV Situation and Policy IV	必修 Compulsory	0	0	第 4 学期 4Th semester	马院 School of Marxism		
	形势与政策V Situation and Policy V	必修 Compulsory	0	0	第 5 学期 5Th semester	马院 School of Marxism		
	形势与政策VI Situation and Policy VI	必修 Compulsory	0	0	第 6 学期 6Th semester	马院 School of Marxism		
军事类 Military Courses	军事理论 Military Theories	必修 Compulsory	2	0	第 1 学期 1St semester	武装部 Security Office		

	军事技能 Military Skills	必修 Compulsory	2	2	短 1 学期 Short Semester 1	武装部 Security Office		
体育类 Physical Education Courses	体育 I Physical Education I	必修 Compulsory	1	1	第 1 学期 1St semester	体育 School of Sports		
	体育 II Physical Education II	必修 Compulsory	1	1	第 2 学期 2Nd semester	体育 School of Sports		
	体育 III Physical Education III	必修 Compulsory	0.5	0.5	第 3 学期 3Rd semester	体育 School of Sports		
	体育 IV Physical Education IV	必修 Compulsory	0.5	0.5	第 4 学期 4Th semester	体育 School of Sports		
	体育健康课程 I Diversified Physical Education Courses I	必修 Compulsory	0.5	0.5	第 5 学期 5Th semester	体育 School of Sports		
	体育健康课程 II Diversified Physical Education Courses II	必修 Compulsory	0.5	0.5	第 6 学期 6Th semester	体育 School of Sports		
必修环节 A compulsory part 共 0 学分，其中必修 0 学分，限选 0 学分，任选 0 学分 A total credits of 0, including 0 for compulsory courses, 0 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践 学分 In-class Practice Credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
大学生综合素质提升、 学生体质达标测评 Comprehensive Quality Improvement Courses for College Students, Assessment of Students' Physical Fitness	大学生综合素质提升 (第二、第三课堂) Comprehensive Quality Improvement Courses for College Students (The Second and Third Classroom)	必修 Compulsory	0	0	1-8 学期 1-8 semester	校团委 Communist Youth League Committee		
	学生体质达标测评 Assessment of Students' Physical Fitness	必修 Compulsory	0	0	秋季学期 fall semester	体育 School of Sports		
学分总计 Total Credits			151 学分 151 Credits					