

Programme Handbook for civil engineering

(Version: V2022.01)

Revision date: 2025.03, Effective date: 2025.03

Academic leader: Professor Fei Weishui, Professional leader:

Professor Xia Qiaoli

I. Basic professional information

School: College of Architecture and

Civil Engineering

Discipline category: Engineering

Specialty category: Civil engineering

Professional name: Civil engineering

Professional code: 081001

Duration: 4 years

Degree awarded: Bachelor of
Engineering

Total credits for China rules: 180

Total teaching hours: 3230

ECTS: 222

Workload: 6073

Educational scale: Currently, there are approximately 550 universities in the Chinese mainland offering civil engineering programs, with annual enrollment and graduate numbers ranging from 100,000 to 150,000, including 16 specialized programs in Yunnan Province. Our university's civil engineering program began enrolling four-year undergraduate students in 2016, was listed as a key construction program at the university level in 2018, approved as a first-class undergraduate program construction site in Yunnan Province in 2021, and included in the first-class undergraduate program construction filing list of Yunnan Province's universities in September 2023, with construction funds allocated. It ranks 8th among the 16 specialized programs in Yunnan Province. The program offers two training directions: Building engineering and Road & Bridge engineering, primarily cultivating high-quality applied talents in engineering construction.

Faculty Team: Currently, there are 22 homo sapiens full-time teachers, including 6 homo sapiens with senior professional titles and 12 homo sapiens with associate senior professional titles. The faculty team has won 21 awards, including the National Curriculum Ideology and Politics Demonstration Case Teaching Competition and the Yunnan Provincial College Teacher Teaching Competition. They have also received 1 Yunnan Provincial Private Education Outstanding Teaching Team award. Under their guidance, students have won 10 national-level and 22 provincial-level discipline competition awards, as well as secured 14 national and

provincial-level College Student Innovation and Entrepreneurship Training Program projects. The Civil Engineering Party Branch was awarded the university-level "Advanced Primary-Level Party Organization."

School Conditions: The institution possesses a Civil Engineering Comprehensive Training Center and a Mechanics Experiment Center, with a total construction area of approximately 10,000 square meters and teaching and research equipment valued at over 40 million yuan. It serves as an examination site for various vocational qualification certificates, including the 1+X Building Information Modeling (BIM) Vocational Skill Level, Safety Officer, Surveyor, Laboratory Technician, On-site Construction Professional Homo sapiens, and Glodon (Advanced). The center annually undertakes students' professional internship programs, experimental and practical training courses for various disciplines, as well as training and examinations for various vocational qualification certificates. Evaluation experts have praised it as reaching the level of "first-class domestically and leading provincially."

II. Training Objectives

Rooted in Yunnan's regional economy and focused on frontline infrastructure development, this program cultivates high-caliber professionals with exemplary moral integrity, strong humanistic literacy, entrepreneurial spirit, and social responsibility. Graduates will develop international perspectives, receive fundamental engineering training, and acquire solid theoretical foundations alongside outstanding practical skills. Equipped with comprehensive competencies and rapid learning abilities, they systematically master core theories and specialized knowledge in structural design, construction technology, and project management. These professionals are capable of addressing complex engineering challenges in civil engineering, demonstrating interdisciplinary collaboration skills to adapt to societal development. They are qualified to work in architectural surveying, design, construction, testing, and management across civil engineering sectors including housing, roads, and bridges.

III. Graduation standards and requirements

(1) Graduation criteria

Students shall achieve all-round development in moral, intellectual, physical, aesthetic, and labor education, complete all required teaching components of this program, earn a minimum of 220 ECTS credits, pass the graduation project (thesis) defense, meet the National Student Physical Health Standards, and comply with the Yunnan College of Business Management's Bachelor's Degree Awarding Regulations. Upon fulfilling these requirements, students will be granted graduation and awarded a Bachelor's degree.

1. The general education curriculum system requires completing 59 ECTS credits, with at least 14 credits from general education electives;
2. The professional education curriculum system requires 153 ECTS credits, including at least 26 credits from elective courses.
3. The comprehensive quality education system requires earning 8 ECTS credits, including 3

credits from innovation and entrepreneurship practice projects, 3 credits from quality education expansion projects, and 2 credits from social practice;

4. Professional qualification requirements: One of the following must be obtained: one of the eight major construction certificates, surveyor, or 1+X construction skill certificate.

(II) Graduation Requirements

Basic graduation requirements	Sub-indicator
<p>Graduation Requirements 1. Engineering Knowledge Ability to apply mathematics, natural sciences, civil engineering fundamentals and professional knowledge to solve complex civil engineering problems.</p>	<p>1.1 Be able to correctly express civil engineering problems with the knowledge of mathematics, natural science and basic professional courses; 1.2 Be able to establish and solve mechanical models with mathematical knowledge in basic professional courses, and analyze complex problems in civil engineering with basic professional courses and mathematical knowledge to establish and solve mathematical models in professional courses; 1.3 Be able to use the professional knowledge of civil engineering to analyze civil engineering problems, and then compare and synthesize various solutions to civil engineering problems to obtain the optimal solution and effective conclusions.</p>
<p>Graduation Requirements 2. Problem Analysis Ability to apply the basic principles of mathematics, natural sciences and civil engineering sciences to identify, express and analyze complex engineering problems through literature research to obtain effective conclusions.</p>	<p>2.1 Be able to use the professional knowledge of natural science and civil engineering to identify and judge the key links of complex engineering problems; 2.2 Be able to express complex engineering problems by using mechanical models based on professional knowledge of mathematics, natural science and civil engineering; 2.3 Be able to apply the professional knowledge of natural science and civil engineering, and obtain effective conclusions by analyzing the influencing factors of complex engineering problems with the help of literature research; 2.4 Can recognize that there are multiple options to solve complex civil engineering problems, and will seek alternative solutions through literature research.</p>
<p>Graduation Requirements 3. Design (Develop) Solutions Be able to design solutions for complex civil engineering problems, design systems, individual structures, components (nodes), construction techniques to meet specific needs, and be able to reflect the sense of innovation in the design or construction process, considering social, health, safety, legal, cultural and environmental factors.</p>	<p>3.1 Master the whole process of civil engineering structure design, consider the factors that affect the safety performance of the whole life cycle of the structure, and be able to comprehensively consider the social, health, safety, legal, cultural and environmental factors that affect the engineering structure design or construction organization; 3.2 Able to complete the mechanical performance design and construction scheme design of system, structure and components (nodes) with specific requirements in civil engineering; 3.3 Be able to introduce new materials, new processes and new methods in engineering scheme design.</p>
<p>Graduation Requirements 4. Research Be able to study complex civil engineering problems based on scientific principles and scientific methods, including experimental design and operation, observation and recording of experimental phenomena, analysis and interpretation of experimental data, and synthesis of experimental phenomena and data analysis results, so as to obtain reasonable and effective conclusions.</p>	<p>4.1 Be able to investigate and analyze complex civil engineering problems based on scientific principles, literature research or relevant methods, and obtain reasonable and effective solutions for civil engineering practice; 4.2 Be able to put forward scientific, reasonable, effective and feasible experimental (test) plans for complex engineering problems; 4.3 Be able to correctly select and operate the experimental device and test equipment, carry out the experiment (test) safely, obtain effective experimental data, analyze and interpret, and get reasonable and effective conclusions.</p>
<p>Graduation Requirements 5. Use modern tools Ability to develop, select and use appropriate technologies, resources, modern engineering tools and information technology tools, including prediction and simulation of complex civil engineering problems, and to understand their limitations, for complex civil engineering</p>	<p>5.1 Understand the principles and methods of using modern instruments and information technology tools commonly used in the profession, and understand their limitations, and be able to select appropriate instruments and information resources for analysis, calculation and design for complex civil engineering problems; 5.2 Understand the principles and usage of commonly used engineering tools and simulation software in the profession, and understand their limitations. For complex civil engineering problems, be able to select appropriate engineering tools and</p>

Basic graduation requirements	Sub-indicator
problems.	professional simulation software for analysis, calculation and design; 5.3 Be able to select modern tools to meet specific needs for specific objects, simulate civil engineering problems, and analyze their limitations.
Graduation Requirements 6. Engineering and Society Be able to conduct reasonable analysis based on civil engineering background knowledge, evaluate the impact of civil engineering practice and solutions to complex civil engineering problems on society, health and safety, law and culture, and understand the responsibilities of civil engineers.	6.1 Understand the technical standard system, intellectual property, industrial policies, laws and regulations in the field of civil engineering, and understand the influence of different social cultures on engineering activities; 6.2 Can analyze and evaluate the impact of professional engineering practice on society, health, safety, law, culture, and the impact of these constraints on project implementation, and understand the responsibilities to be assumed.
Graduation Requirements 7. Environment and Sustainability To understand and evaluate the impact of professional engineering practice on environmental and social sustainability for complex civil engineering problems.	7.1 Know and understand the concept and connotation of environmental protection and sustainable development, and be able to apply environmental protection measures and energy saving technologies to civil engineering practice; 7.2 The ability to think about the sustainability of civil engineering practice from the perspective of environmental protection and sustainable development, and the ability to evaluate civil engineering design, construction and management.
Graduation Requirements 8. Professional Standards With humanistic and social science literacy and a sense of social responsibility, they can understand and abide by engineering ethics and norms in civil engineering practice, fulfill their responsibilities, take responsibility, contribute to the country and serve the society.	8.1 Establish and practice the core socialist values, correctly understand the basic national conditions that China is in and will remain in the primary stage of socialism for a long time to come, and have a strong sense of mission and responsibility as builders and successors of the socialist cause; 8.2 Understand the engineering professional ethics and norms of abiding by the law and dedication, respecting nature, being dedicated to work and keeping promises, innovating and seeking perfection, honesty, fairness, integrity and compliance, and be able to consciously abide by them in engineering practice; 8.3 Understand the social responsibility of civil engineers to public safety, health and well-being, and environmental protection, and be able to consciously fulfill the responsibility of safety, quality and environmental protection in engineering practice.
Graduation Requirements 9. Individual and Team Be able to take on individual, team member and responsible roles in a multidisciplinary team.	9.1 Have the ability to communicate and cooperate effectively with team members from other disciplines, and play the role of multi-disciplinary integration; 9.2 Have the ability to work independently or cooperatively in the team, and play the role of individuals in the team; 9.3 As a team leader or core member, have the ability to organize, coordinate and command the team to carry out the work.
Graduation Requirements 10. Communication Demonstrate effective communication and collaboration with industry peers and the public on complex civil engineering challenges, including drafting reports and technical documents, delivering presentations, and articulating instructions clearly. Possess international perspective and basic foreign language proficiency to facilitate cross-cultural communication.	10.1 Be able to effectively express opinions on civil engineering problems orally or in writing, respond to questions, and understand the differences in communication with industry counterparts and the public; 10.2 Be able to understand the international development trends and research hotspots in the field of civil engineering, and understand and respect the differences and diversity of different cultures in the world. 10.3 Have a certain international vision and be able to communicate and exchange in cross-cultural context.
Graduation Requirements 11. Project Management Understand, master and apply engineering management principles and economic decision-making methods in a multidisciplinary environment related to civil engineering, with certain organizational, management and leadership skills.	11.1 Understand the cost composition of the whole cycle and process of civil engineering, understand the engineering management and economic decision-making problems involved, and master the management principles and economic decision-making methods involved in engineering projects; 11.2 Be able to apply management principles and economic decision-making methods to the whole life process of civil engineering in the process of design and development of solutions in a multidisciplinary environment.

Basic graduation requirements	Sub-indicator
Graduation Requirements 12. Lifelong Learning Be able to understand the development trend of civil engineering industry, learn the new development of civil engineering technology, have the awareness of independent learning and lifelong learning, and have the ability to continue learning and adapt to the development.	12.1 Can correctly understand the necessity of autonomy and lifelong learning in the context of social development; 12.2 The ability to learn independently, including technical understanding, induction and summarization, and the ability to ask questions.

4. Core Disciplines, Competency Modules, Core Courses, and Graduation Requirements Matrix

(I) Main disciplines

Mechanical and civil engineering

(II) Professional competence module and core courses

1. Module Name

Graphic interpretation module, mechanical analysis and calculation module, structural design module, construction technology and management module

2. Core Professional Courses

Construction Engineering Drawing and Reading, Theoretical Mechanics, Material Mechanics, Structural Mechanics, Civil Engineering Materials, Engineering Surveying, Soil Mechanics and Foundation Engineering, Principles of Concrete Structure Design, Principles of Steel Structure Design, Engineering Seismic

3. Teaching objectives and learning outcomes

Module Name	Supporting Courses	Teaching objectives and learning outcomes	Prerequisites	workload hours	ECTS credit
Chart and Image Recognition Module	Construction engineering drawing and interpretation Computer-Aided Design (CAD) Flat drawing reading and steel quantity calculation	Through study, students will master the fundamental principles and methods of architectural engineering drafting and interpretation, as well as the operation of computer-aided design (CAD) systems and commonly used software. They will be able to read engineering drawings, create construction drawings and structural drawings using CAD, and other related tasks.	University Computer Basics higher mathematics	150	6
Mechanical Analysis and Calculation	college physics rational mechanics mechanics of materials structural mechanics	Through learning, master the basic theory of mechanics, mechanics analysis and calculation methods.	higher mathematics linear algebra Probability	450	18

Module Name	Supporting Courses	Teaching objectives and learning outcomes	Prerequisites	workload hours	ECTS credit
Module	Soil mechanics and foundation engineering hydraulics		theory and mathematical statistics		
Structure Design Module	Engineering load and reliability design principles Principles of concrete structure design Steel structure design principles High-rise building structure design Concrete and masonry structure design design of steel structure Application of architectural structure design software	Through learning, students can master the basic knowledge and methods of structural design, have the ability to use the basic principles and methods of structural design for structural design, as well as the ability to use structural design software for structural modeling and preliminary comprehensive application analysis.	Civil Engineering Materials rational mechanics of materials structural mechanics Construction engineering drawing and interpretation Computer-Aided Design (CAD)	450	18
	Engineering load and reliability design principles Principles of concrete structure design Steel structure design principles road survey and design Roadbed and pavement works bridge construction Road and bridge engineering software application			450	18
Construction technology and management module	engineering survey Civil Engineering Construction, Civil Engineering Construction Organization, Road and Bridge Construction, Road and Bridge Construction Organization	Through the study, students can master the construction technology and organization, construction quality acceptance and other knowledge in the field of civil engineering, and have the ability to write construction plan and construction organization	Civil Engineering Cognitive Practice Civil Engineering Materials engineering geology Construction	325	13

Module Name	Supporting Courses	Teaching objectives and learning outcomes	Prerequisites	workload hours	ECTS credit
	Project quality and safety management Engineering structure appraisal and testing BIM5D collaborative project management Construction Engineering Regulations Prefabricated construction tunnel construction	design.	engineering drawing and interpretation		

(3) Curriculum and Graduation Requirements Matrix (see Appendix 1.1/1.2)

V. Main practical links of the major

order number	curriculum	Required	Main practice projects	workload hour	Semester (weeks)	Location (including off-campus)
1	Civil Engineering Cognitive Practice	yes	specialty practice	50	1 week	Off-campus internship base
2	Engineering geology practice	yes	specialty practice	50	3 (1 week)	Off-campus internship base
3	University Physics Lab	yes	Verification of university physics experiment	25	2 (1 week)	University Physics Laboratory
4	Construction engineering drawing and interpretation	yes	Construction drawing interpretation and drawing	25	1 (18 weeks)	Building drawing laboratory
5	General Chemistry (Lab)	yes	Basic inorganic chemistry experiment	25	3 (18 weeks)	Basic Chemistry Laboratory
6	Civil Engineering Materials (Laboratory)	yes	Cement test, mortar test, asphalt test and other basic engineering material tests	25	3 (18 weeks)	Building Materials Laboratory
7	Hydraulics (Experimental)	yes	Basic hydraulics experiments such as hydrostatic pressure experiment, streamline demonstration experiment, and energy equation experiment	10	4 (18 weeks)	Hydraulics Laboratory
8	Building design course	yes	Civil architectural design (plan, elevation, section, detailed drawings, etc.) and drafting	25	3 (1 week)	Civil Engineering Integrated Training Center
9	Basic engineering course design	yes	Common shallow foundation design and drawing	75	5 (1 week)	Civil Engineering Integrated Training

order number	curriculum	Required	Main practice projects	workload hour	Semester (weeks)	Location (including off-campus)
						Center
10	Materials Mechanics (Experimental)	yes	Axial tension test, axial compression test, torsion test, bending test, etc	15	4 (1 week)	Materials Mechanics Laboratory
11	Engineering Surveying Practice	yes	Angle, distance, leveling, traverse measurement and calculation, preliminary topographic survey and drawing, etc	100	4 (5 weeks)	Engineering Survey Laboratory
12	Soil Mechanics and Foundation Engineering (Experiment)	yes	Soil density test, water content test, liquid plastic limit test, consolidation test, soil direct shear test, soil triaxial shear test, etc	15	5 (1 week)	Soil Mechanics Laboratory
13	Civil Engineering Construction Course Design (BIM) / Road and Bridge Construction Course Design (BIM)	yes	Construction progress schedule Gantt chart, time-scale network diagram, construction site layout plan, technical and economic indicator analysis, etc.	75	7 (2 weeks)	Civil Engineering Integrated Training Center
14	Concrete structure course design	yes	Civil building floor design	100	6 (2 weeks)	Civil Engineering Integrated Training Center
15	Steel structure design	yes	Single-storey industrial plant design	75	6 (2 weeks)	Civil Engineering Integrated Training Center
16	Road survey course design	yes	Roadline design, longitudinal section design, transverse section design, subgrade design, etc	50	5 (1 week)	Civil Engineering Integrated Training Center
17	Roadbed and pavement engineering course design	yes	Subgrade stability design, subgrade retaining wall design, pavement engineering design	50	6 (1 week)	Civil Engineering Integrated Training Center
18	Bridge engineering course design	yes	Bridge design	75	6 (2 weeks)	Civil Engineering Integrated Training Center
19	Engineering Training	yes	Electrical work, welding and other work training	100	4 (9 weeks)	Engineering Training Center
20	BIM supporting technology	deny	BIM Modeling Applications	25	4 (9 weeks)	BIM Teaching Center
21	Computer-Aided	deny	CAD software operation and	25	3 (9 weeks)	Civil Engineering

order number	curriculum	Required	Main practice projects	workload hour	Semester (weeks)	Location (including off-campus)
	Design (CAD)		application			Integrated Training Center
22	fieldwork	yes	—	300	7 (8 weeks)	practice base
23	graduation field work	yes	—	150	8 (4 weeks)	outside school
24	Graduation Project (Thesis)	yes	—	350	8 (14 weeks)	On campus and off campus
	amount to	—	—	1815	—	—

Note: Practical teaching components include experiments (training), internships, social practice, graduation projects (theses), and course designs. The venue must specify the name of the laboratory or internship base.

VI. Teaching plan and implementation

1. Time allocation table for each semester (unit: week)

project	First year		Second academic year		Third Year		Fourth Year		amount to
	1	2	3	4	5	6	7	8	
Military theory and training	2	—	—	—	—	—	—	—	2
Course instruction	16	18	18	18	18	18	9	—	115
fieldwork	—	—	—	—	—	—	8	—	8
graduation field work	—	—	—	—	—	—	—	4	4
Graduation Project (Thesis)	—	—	—	—	—	—	2	14	16
Exam/Credit Recognition/Graduation Qualification Review	2	2	2	2	2	2	1	4	18
Total weeks of education	20	20	20	20	20	20	20	18	158
winter vacation and summer vacation	5	7	5	7	5	7	5	—	41
School year weeks	52		52		52		43		199

2. Semester teaching plan schedule (see Appendix 2)

3. Professional education theme activities

order number	activity theme	educational objective	form of activity	constitutor	school term
1	Admission Education	New Student Orientation	classwide meeting	institute of civil engineering	1
2	Professional awareness	Professional awareness	a course of lectures	institute of civil engineering	1
3	Career Planning	College Student Career Planning	a course of lectures	Quality Education Center	1

order number	activity theme	educational objective	form of activity	constitutor	school term
4	Humanity and teamwork	Humanistic quality	Class meetings and club activities	Youth League Committee	1 to 7
5	Professional skills training	Professional Competence	Skills competition, social practice, etc	institute of civil engineering	1 to 7
6	Job qualification training	Certificate obtained	cultivate	institute of civil engineering	7

Revise	Director of Teaching and Research Office	Wang Hao			
	Homo sapiens professionals	Xia Qiaoli	Academic leader Homo sapiens	Fei Weishui	
Approval	Vice Dean for Academic Affairs	Zhang Tao			
	Dean	Fei Weishui			

Appendix 1.1: Curriculum and Graduation Requirements Matrix (Building Engineering)

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements													
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12		
General Education Courses	obligatory	Ideological, Moral and Legal Education	3	75	3	54						√	√	√						
		An Overview of Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era	3	75	3	54						√	√	√						
		Basic principles of Marxism	3	75	3	54								√					√	
		Essentials of Chinese Modern History	3	75	3	54								√						
		An Overview of Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	3	75	3	54						√	√	√					√	
		situation and policy	2	50	2	48							√	√						√
		Foreign Language for College	12	360	12	216											√			√
		Beauty and Life- (The Lady's School / The Gentleman's School)	1	25	1	18											√			
		Health education for college students	2	50	2	36											√			√
		Military theory and training	4	100	4	36										√				√
		University Sports (Club)	4	100	4	144										√				√
		Career planning and employment guidance	1	25	1	18									√	√				√
		Entrepreneurship Education	2	50	2	36										√	√	√		√
	University Computer Basics	2	50	2	36					√									√	
	take as an	General education elective courses	14	350	14	252									√	√		√		

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements													
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12		
	elective course	(including four histories, China's excellent traditional culture, and other ideological and political elective compulsory courses)																		
Discipline-based Foundation Courses	certainly embellish	higher mathematics	10	280	10	180	√	√												
		linear algebra	3	84	3	54	√	√												
		college physics	3	84	3	54	√	√												
		University Physics Lab	1	28	1	20				√										
		Programming language (C)	2	56	2	36		√	√		√									
		Probability theory and mathematical statistics	3	84	3	54	√	√												
		general chemistry	3	84	3	54	√	√												
		complex function	2	56	2	36	√	√												
		autecology	2	56	2	36	√							√						
Professional Foundation Courses	certainly embellish	Introduction to Civil Engineering	1	28	1	18										√		√		
		Construction engineering drawing and interpretation	3	84	3	54	√	√			√					√				
		engineering geology	2	56	2	36														
		Civil Engineering Materials	3	84	2.5	48	√			√			√	√						
		rational mechanics	3	84	3	54	√	√	√											
		building construction	2	56	2	36	√		√											
		engineering survey	2	56	2	36	√				√									

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements												
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	
		mechanics of materials	3	84	3	54	√	√		√									
		hydraulics	2	56	2	36	√			√									
		structural mechanics	4	112	4	72	√	√	√		√								
		Civil engineering structure test	1	28	1.5	27				√	√								
		Civil engineering construction regulations	1	28	1	18						√		√					
Core Professional Courses	certainly embellish	Soil mechanics and foundation engineering	3	75	3	54		√	√	√									
		Principles of concrete structure design	4	100	3.5	64	√	√	√	√									
		Steel structure design principles	3	75	2.5	45	√		√	√									
		Earthquake resistance	2	50	2	36			√			√		√					
Specialized Professional Practice Course	obligatory	Civil Engineering Cognitive Practice	2	60	1	20						√		√	√				
		Engineering geology practice	2	60	1	20						√		√	√				
		Building design course	2	60	1	20			√		√					√			
		Engineering Training	4	120	2	36						√		√	√				
		Engineering Surveying Practice	4	120	2	40					√				√				
		Basic engineering course design	3	90	1	20			√			√							
		Concrete structure course design	4	120	2	40			√		√	√							
		Steel structure design	3	90	1.5	30		√	√		√								
		Civil Engineering Construction Course Design (BIM)	3	90	1.5	30					√	√	√						
		fieldwork	12	360	4	80				√	√	√	√	√		√	√	√	

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements													
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12		
		graduation field work	6	180	2	40	√		√		√			√	√	√				
		Graduation Project (Thesis)	14	420	7	140		√	√	√	√	√	√			√	√	√		
Specialty Electives	take as an elective course	Construction of Civil Engineering	3	90	2.5	45			√		√	√	√							
		Concrete and masonry structure design	4	120	3.5	64	√	√	√			√								
		design of steel structure	3	90	2.5	45	√	√	√			√								
		High-rise building structure design	2	60	2	36			√			√		√						
		Civil engineering construction organization	2	60	1.5	27						√	√					√		
		Scientific Literature Retrieval and Writing (Engineering)	1.0	25	1.0	18		√												
		Computer-Aided Design (CAD)	2	50	1.5	27					√									
		BIM supporting technology	2	50	1.5	27					√									
		Flat drawing reading and steel quantity calculation	2	50	2	36					√								√	
		engineering economy	1.5	38	1.5	27									√				√	
		Engineering load and reliability design principles	1.5	38	1.5	27			√			√								
		English for Civil Engineering	2	50	2	36										√				√
		geo-information system	1	25	1	18					√									
Application of architectural structure design software	1	25	1	18					√											
	obligatory	Innovation and entrepreneurship	3	75	3												√	√		

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements											
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
		practice project																
		Quality Education Extension Program	3	75	3												√	√
		social practice	2	50	2												√	√

Appendix 1.2: Curriculum and Graduation Requirements Matrix (Road & Bridge Engineering)

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements														
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12			
General Education Courses	obligatory	Ideological, Moral and Legal Education	3	75	3	54						√	√	√							
		An Overview of Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era	3	75	3	54						√	√	√							
		Basic principles of Marxism	3	75	3	54								√					√		
		Essentials of Chinese Modern History	3	75	3	54								√							
		An Overview of Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	3	75	3	54							√	√	√					√	
		situation and policy	2	50	2	48								√	√					√	
		Foreign Language for College	12	360	12	216												√		√	
		Beauty and Life- (The Lady's School / The Gentleman's School)	1	25	1	18													√		
		Health education for college students	2	50	2	36													√		√
		Military theory and training	4	100	4	36												√			√
		University Sports (Club)	4	100	4	144												√			√
		Career planning and employment guidance	1	25	1	18										√	√				√
		Entrepreneurship Education	2	50	2	36											√	√	√		√
	University Computer Basics	2	50	2	36						√									√	
	take as an elective course	General education elective courses (including four histories, China's excellent traditional culture, and other ideological and political elective compulsory	14	350	14	252										√	√		√		

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements															
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12				
		courses)																				
Discipline-based Foundation Courses	certainly embellish	higher mathematics	10	280	10	180	√	√														
		linear algebra	3	84	3	54	√	√														
		college physics	3	84	3	54	√	√														
		University Physics Lab	1	28	1	20				√												
		Programming language (C)	2	56	2	36		√	√		√											
		Probability theory and mathematical statistics	3	84	3	54	√	√														
		general chemistry	3	84	3	54	√	√														
		complex function	2	56	2	36	√	√														
		autecology	2	56	2	36	√							√								
Professional Foundation Courses	certainly embellish	Introduction to Civil Engineering	1	28	1	18												√		√		
		Construction engineering drawing and interpretation	3	84	3	54	√	√			√								√			
		engineering geology	2	56	2	36																
		Civil Engineering Materials	3	84	2.5	48	√			√			√	√								
		rational mechanics	3	84	3	54	√	√	√													
		building construction	2	56	2	36	√		√													
		engineering survey	2	56	2	36	√				√											
		mechanics of materials	3	84	3	54	√	√		√												
		hydraulics	2	56	2	36	√			√												
		structural mechanics	4	112	4	72	√	√	√		√											
		Civil engineering structure test	1	28	1.5	27				√	√											

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements												
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	
		Civil engineering construction regulations	1	28	1	18						√		√					
Core Professional Courses	certainly embellish	Soil mechanics and foundation engineering	3	75	3	54		√	√	√									
		Principles of concrete structure design	4	100	3.5	64	√	√	√	√									
		Steel structure design principles	3	75	2.5	45	√		√	√									
		Earthquake resistance	2	50	2	36			√			√		√					
Specialized Professional Practice Course	obligatory	Civil Engineering Cognitive Practice	2	60	1	20						√		√	√				
		Engineering geology practice	2	60	1	20						√		√	√				
		Building design course	2	60	1	20			√		√						√		
		Engineering Training	4	120	2	36						√		√	√				
		Engineering Surveying Practice	4	120	2	40					√				√				
		Basic engineering course design	3	90	1	20			√			√							
		Road survey course design	2	60	1	20			√		√								
		Roadbed and pavement engineering course design	2	60	1	20			√			√	√						
		Bridge engineering course design	3	90	1.5	30			√		√			√					
		Bridge and Road Construction Engineering Course Design (BIM)	3	90	1.5	30					√	√	√						
		fieldwork	12	360	4	80				√	√	√	√	√			√	√	√
		graduation field work	6	180	2	40	√		√		√			√	√	√			
Graduation Project (Thesis)	14	420	7	140		√	√	√	√	√	√				√	√	√		
Elective courses	take as an elective course	road survey and design	2	60	2	36	√		√			√							
		Road and bridge construction	3	90	2.5	45			√		√	√	√						
		Roadbed and pavement works	3	90	2.5	45	√	√	√										

	class rule nature nature	course title	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	Graduation Requirements												
							R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	
		bridge construction	4	120	3.5	64	√		√				√						
		Road and bridge construction organization	2	60	1.5	27						√	√				√		
		Scientific Literature Retrieval and Writing (Engineering)	1.0	25	1.0	18		√											
		Computer-Aided Design (CAD)	2	50	1.5	27					√								
		BIM supporting technology	2	50	1.5	27					√								
		Flat drawing reading and steel quantity calculation	2	50	2	36					√						√		
		engineering economy	1.5	38	1.5	27								√			√		
		Engineering load and reliability design principles	1.5	38	1.5	27			√			√							
		English for Civil Engineering	2	50	2	36									√			√	
		Road and bridge project estimate	1	25	1	18											√		
		Road and bridge engineering software application	1	25	1	18					√								
	obligatory	Innovation and entrepreneurship practice project	3	75	3												√	√	
		Quality Education Extension Program	3	75	3													√	√
		social practice	2	50	2													√	√

Annex 2: Teaching plan schedule for each semester

class rule class leave	class rule nature nature	course title	curriculum code	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	ECTS Credit Allocation										
								1-Year		2-Year		3-Year		4-Year				
								S1	S2	S1	S2	S1	S2	S1	S2			
								18wk tch										
General Education Platform	General Education Courses	obligatory	Ideological, Moral and Legal Education	914020033	3	75	3	54	3									
		An Overview of Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era	914020031	3	75	3	54	3										
		Basic principles of Marxism	914020018	3	75	3	54		3									
		Essentials of Chinese Modern History	914020024	3	75	3	54		3									
		An Overview of Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	914020003	3	75	3	54			3								
		situation and policy	914020014	2	50	2	48			1		1						
		Foreign Language for College	911090016	12	360	12	216	3	3	3	3							
		Beauty and Life- (Shu Nu Academy)	911090021	1	25	1	18		1									
		Beauty and Life- (Junzi Academy)	911090022															
		Health education for college students	913021011	2	50	2	36	1	1									
		Military theory and training	913020021	5	125	4	36	5										
		University Sports (Club)	911070001	5	125	4	144	1	1	1	1							
		Career planning and employment guidance	913020004	1	25	1	18							1				
		Entrepreneurship Education	911082001	2	50	2	36		1		1							
		University Computer Basics	911090023	2	50	2	36	2										
take as an elective course		General education elective courses (including four histories, China's excellent traditional culture, and other ideological and political elective compulsory courses)	—	14	350	14	252	1	1		4	4	3	1				

class rule class leave	class rule nature nature	course title	curriculum code	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	ECTS Credit Allocation								
								1-Year		2-Year		3-Year		4-Year		
								S1	S2	S1	S2	S1	S2	S1	S2	
								18wk tch								
accumulative total			—	61	1585	59	1142	19	14	8	9	5	4	1	0	
monopolize line of business teaching give birth to flat tower	Discipline-based Foundation Courses	certainly embellish	higher mathematics	100130001	10	280	10	180	5	5						
			linear algebra	100130003	3	84	3	54		3						
			college physics	100130005	3	84	3	54		3						
			University Physics Lab	100130006	1	28	1	20		1						
			Programming language (C)	100130010	2	56	2	36		2						
			Probability theory and mathematical statistics	100130004	3	84	3	54			3					
			general chemistry	100130007	3	84	3	54			3					
			complex function	100130009	2	56	2	36			2					
			autecology	100130008	2	56	2	36				2				
	subtotal			—	29	812	29	524	5	14	8	2	0	0	0	0
	Professional Foundation Courses	certainly embellish	Introduction to Civil Engineering	100130011	1	28	1	18	1							
			* Construction engineering drawing and interpretation	100130013	3	84	3	54	3							
			engineering geology	100130012	2	56	2	36		2						
			Civil engineering materials	100130014	3	84	2.5	48			3					
			* rational mechanics	100130015	3	84	3	54			3					
			building construction	100130018	2	56	2	36			2					
			* engineering survey	100130020	2	56	2	36				2				
			* mechanics of materials	100130016	3	84	3	54				3				
hydraulics			100130019	2	56	2	36				2					
* structural mechanics	100130017	4	112	4	72					4						

class rule class leave	class rule nature nature	course title	curriculum code	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	ECTS Credit Allocation								
								1-Year		2-Year		3-Year		4-Year		
								S1	S2	S1	S2	S1	S2	S1	S2	
								18wk tch								
		Civil engineering structure test	100130063	1	28	1.5	27						1			
		Civil engineering construction regulations	100130054	1	28	1	18				1					
		subtotal	—	27	756	27	489	4	2	8	8	4	1	0	0	
Core Professional Courses	certainly embellish	* Soil mechanics and foundation engineering	100130021	3	75	3	54					3				
		Principles of concrete structure design	100130022	4	100	3.5	64					4				
		* Principles of steel structure design	100130023	3	75	2.5	45					3				
		*Earthquake resistance	100130024	2	50	2	36						2			
			subtotal	—	12	300	11	199	0	0	0	0	10	2	0	0
Specialized Professional Practice Course	obligatory	Civil Engineering Cognitive Practice	100130032	2	60	1	20	2								
		Engineering geology practice	100130033	2	60	1	20			2						
		Building design course	100130034	2	60	1	20			2						
		Engineering Training	100130035	4	120	2	36				4					
		Engineering Surveying Practice	100130036	4	120	2	40				4					
		Basic engineering course design	100130037	3	90	1	20					3				
		Building Engineering	Concrete structure course design	100130039	4	120	2	40						4		
			Steel structure design	100130040	3	90	1.5	30						3		
			Civil Engineering Construction Course Design (BIM)	100130038	3	90	1.5	30							3	
		Road & Bridge Engineering	Road survey course design	100130042	2	60	1	20					2			
Roadbed and pavement engineering course design	100130043		2	60	1	20						2				

class rule class leave	class rule nature nature	course title	curriculum code	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	ECTS Credit Allocation									
								1-Year		2-Year		3-Year		4-Year			
								S1	S2	S1	S2	S1	S2	S1	S2		
								18wk tch									
		Bridge engineering course design	100130044	3	90	1.5	30						3				
			100130041	3	90	1.5	30						3				
		fieldwork	100130045	12	360	4	80						12				
		graduation field work	100130046	6	180	2	40							6			
		Graduation Project (Thesis)	100130047	14	420	7	140							14			
		Subtotal (Construction Engineering)				59	1770	26	516	2	0	4	8	3	7	15	20
		Subtotal (Transportation and Civil Engineering)				59	1770	26	516	2	0	4	8	5	5	15	20
		Elective courses	Limited options	Computer-Aided Design (CAD)		100130051	2	50	1.5	27			2				
				BIM supporting technology		100130048	2	50	1.5	27				2			
			Elective for major	Building Engineering	Construction of Civil Engineering		100130025	3	90	2.5	45					3	
Concrete and masonry structure design					100130026	4	120	3.5	64					4			
design of steel structure					100130027	3	90	2.5	45					3			
High-rise building structure design					100130028	2	60	2	36						2		
Civil engineering construction organization				100130029	2	60	1.5	27						2			
Road & Bridge Engineering	road survey and design		100130031	2	60	2	36				2						
	Road and bridge construction		100130030	3	90	2.5	45					3					
	Roadbed and pavement works		100130032	3	90	2.5	45					3					
	bridge construction		100130033	4	120	3.5	64					4					
Road and bridge construction organization		100130034	2	60	1.5	27						2					

class rule class leave	class rule nature nature	course title	curriculum code	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	ECTS Credit Allocation							
								1-Year		2-Year		3-Year		4-Year	
								S1	S2	S1	S2	S1	S2	S1	S2
								18wk tch							
		Scientific Literature Retrieval and Writing (Engineering)	100130052	1.0	25	1.0	18			1					
		Flat drawing reading and steel quantity calculation	100130055	2	50	2	36			2					
		engineering economy	100130050	1.5	38	1.5	27				2				
		mathematical modeling	100130056	1	25	1	18				1				
		Engineering load and reliability design principles	100130058	1.5	38	1.5	27				2				
		Fundamentals of Management	100130057	1.5	38	1.5	27				2				
		Electrical and Electronic Fundamentals	100130049	2	50	2	36					2			
		English for Civil Engineering	100130059	2	50	2	36					2			
		geo-information system	100130060	1	25	1	18					1			
		Principle and technology of intelligent building equipment automation	100130061	2	50	2	36						2		
		Architectural VR/AR interaction design	100130062	2	50	2	36						2		
		BIM5D collaborative project management	100130053	1	25	1	18							1	
		Engineering structure appraisal and testing	100130064	2	50	2	36							2	
		Project quality and safety management	100130065	1	25	1	18							1	
		Smart IoT cloud technology	100130066	2	50	2	36							2	
		Smart construction AI application	100130067	2	50	2	36							2	
	Building Engineering	Preface to Prefabricated Construction	100130068	1	25	1	18					1			
		Prefabricated construction	100130069	2	50	2	36					2			
		Green building construction management	100130070	2	50	2	36					2			

class rule class leave	class rule nature nature	course title	curriculum code	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	ECTS Credit Allocation								
								1-Year		2-Year		3-Year		4-Year		
								S1	S2	S1	S2	S1	S2	S1	S2	
								18wk tch								
		Construction project estimate	100130072	1	25	1	18						1			
		building implements	100130073	2	50	2	36							2		
		Application of architectural structure design software	100130074	1	25	1	18					1				
		hydrology of bridge and culvert	100130075	1.5	38	1.5	27					2				
		traffic engineering	100130076	1.5	38	1.5	27					2				
		Road and bridge project estimate	100130077	1	25	1	18						1			
		tunnel construction	100130078	2	50	2	36						2			
		Highway maintenance and management	100130079	1	25	1	18							1		
		Road and bridge engineering software application	100130080	1	25	1	18						1			
		Subtotal (Elective) (Construction Engineering)	—	26	650	20	360			2	2	2	12	8		
		Minor (Elective) (Civil Engineering and Transportation)	—	26	650	20	360			2	2	2	12	8		
		accumulative total	—	153	4288	113	2088	11	16	22	20	19	22	23	20	
		accumulative total	—	153	4288	113	2088	11	16	22	20	21	20	23	20	
Comprehensive quality education	obligatory	Innovation and entrepreneurship practice project	—	3	75	3									3	
		Quality Education Extension Program	—	3	75	3										3
		social practice	—	2	50	2									2	
		subtotal	—	8	200	8	(156)	0	0	0	0	0	0	0	2	6
Total (Construction Engineering)			—	222	6073	180	3230	30	30	30	29	24	26	26	26	
Total (Civil Engineering Direction)			—	222	6073	180	3230	30	30	30	29	26	24	26	26	

class rule class leave	class rule nature nature	course title	curriculum code	ECTS credit	ECTS class hour	China teaching credits	China teaching hours	ECTS Credit Allocation							
								1-Year		2-Year		3-Year		4-Year	
								S1	S2	S1	S2	S1	S2	S1	S2
								18wk tch							

pour :

1.4/15 indicates that the course spans 15 weeks with 4 class hours per week, and each course must specify both the total duration and weekly hours. Full-week schedules are marked with ●, while dispersed schedules are marked with √. Core professional courses are marked with *.

2. The credit hours and credits in parentheses are not included in the total credit hours and credits, but are included in the graduation requirements.

3. The course start and end weeks are assumed to be 1-18. If the start and end weeks are not 1-18, they should be specified. For example, 2/3-10 means the course is taught from week 3 to week 10, with 2 class hours per week.

4. If the experiment (training) class hours of a course exceed 70% of the course hours, it should be set up as an independent course.