

Instructive Cultivation Plan for the Program of Environmental Protection Equipment Engineering

(Grade 2019)

Course code: 082505T

1. Orientation

Focusing on the "career-oriented higher education" construction positioning of the school, this program integrates application ability, knowledge transfer, skills training, etc., and practices training models, such as integration of production and education, the integration of dual certificates and international teaching. This program will cultivate application-oriented high-level engineering and technical talents in the field of environmental protection equipment and environmental protection machinery in the field of solid waste (featured by the utilization of electronic waste as a resource) who meets the needs of China's modern ecological civilization construction.

2. Cultivation Objective

1. General Objective

This program will cultivate application-oriented technical talents who are comprehensively developed on the aspects of morality, intelligence, physical fitness, beauty and labor, possess the concept of sustainable development, master the basic theories, professional knowledge and application skills in the field of environmental engineering, are familiar with the theory and technology of pollution control in environmental engineering and related fields, are capable of processing, environmental monitoring and governance in solid waste (especially e-waste) field, have good professional ethics and strong practical skills, as well as relevant basic knowledge to analyze and solve complex engineering problems, are suitable for the needs of governments, enterprises and other institutions, and can be engaged in engineering design, operation management, research and development, planning, monitoring, consulting, and education, etc. in the fields of environmental protection, economic management and so on and in environmental engineering design units, industrial and mining enterprises, scientific research institutions, universities and other environmental protection departments.

2. Cultivation Value

The country attaches great importance to environmental problems. As the saying goes "preferably green water and green mountains, not golden mountains and silver mountains, green water and green mountains are golden mountains and silver mountains", the country is

vigorously promoting environmental pollution control. This program strives to guide students to pay attention to the concept and practice of green development in the new era, establish an awareness of ecological civilization, enhance China's environmental protection "ideology", "practice", "system view" and "global view", and actively cultivate the values of environmental engineering programs, so as to consolidate the value foundation of college students.

3. Five-Year Goal after Graduation:

About 5-10 years after graduation, students shall:

(1) Be able to independently engage in environmental engineering-related project planning, design, construction, operation, management, etc., be able to independently design solutions to complex environmental engineering problems, and can use modern tools and analysis methods to independently complete more complex design work, can take on positions such as engineers and technical managers;

(2) Have good scientific research literacy and teamwork spirit, and be able to undertake environmental-related application technology development projects;

(3) Have practical experience and management capabilities in related fields of environmental management, and be able to serve as technical leader, project team leader, and grassroots manager in environmental protection companies.

3. Requirement for Graduation

The environmental engineering program of our school expands the core competence and quality expression of 12 graduation requirements based on the 12 general professional certification standards and the actual situation of our school. The graduation requirements are as follows:

Graduation requirement 1: Ability to acquire and apply engineering knowledge: Be able to use mathematics, natural sciences, engineering foundations and professional knowledge to solve complex environmental engineering and environmental protection equipment problems.

Index point 1-1: Master the mathematical knowledge and applications of advanced mathematics, linear algebra, probability theory and mathematical statistics for solving complex environmental engineering problems;

Index point 1-2: Master the natural science knowledge and application of chemistry, biology, mechanics and so on to solve complex environmental engineering problems;

Index points 1-3: Master the basic engineering knowledge and applications of electrical engineering, physical chemistry, chemical engineering, and civil engineering to solve complex environmental engineering problems;

Index points 1-4: Master the professional basic knowledge of solving the "three wastes" and the application in the field of environmental protection.

Graduation requirement 2: Ability to analyze problems: Be able to apply the basic principles of mathematics, natural sciences and engineering sciences to identify, express, and analyze complex environmental engineering and environmental protection equipment problems through literature research, and can obtain effective conclusions.

Index point 2-1: Be able to use relevant knowledge to reason, analyze, identify and judge the key links and parameters of complex environmental engineering and environmental protection equipment problems;

Index point 2-2: Be able to find solutions to complex environmental problems and environmental protection equipment through literature analysis;

Index point 2-3: Be able to use basic principles to analyze the rationality of the solution.

Graduation requirement 3: Ability to innovate design/development solutions: Be able to design solutions to complex environmental engineering problems, design systems, units (components) or process flows that meet specific needs, and be able to reflect the sense of innovation in the design process, and can consider social, health, safety, legal, cultural and environmental factors.

Index point 3-1: Master the basic methods of engineering design, and be able to present the design results in the form of reports, drawings or objects;

Index point 3-2: Be able to formulate solutions to the characteristics of complex environmental engineering problems, and design systems, units or processes that meet specific needs;

Index point 3-3: Be able to comprehensively consider social, health, safety, legal, ethical, cultural and environmental factors in the design, and reflect a certain sense of innovation.

Graduation requirement 4: Scientific research ability: Be able to study complex environmental engineering problems based on scientific principles and by using scientific methods, including designing experiments, analyzing and interpreting data, and obtaining reasonable and effective conclusions through information synthesis.

Index point 4-1: Be able to design feasible experimental schemes for complex environmental engineering problems based on scientific principles and by adopting scientific methods, and master common qualitative and quantitative detection methods and data collection methods of environmental pollutants;

Index point 4-2: Be able to correctly analyze and interpret data based on scientific principles and methods;

Index point 4-3: Be able to obtain reasonable and effective conclusions by integrating basic principles, literature synthesis, and analysis of experimental data.

Graduation requirement 5: Ability to use modern tools: Be able to develop, select and use appropriate technologies, resources, modern engineering tools and information technology tools for complex environmental engineering and environmental protection equipment problems, including the prediction and simulation of complex environmental engineering and environmental protection equipment problems, and be able to understand the limitations.

Index point 5-1: Be able to develop or select one or more modern technologies and engineering tools according to the needs of the researched complex environmental engineering and environmental protection equipment issues;

Index point 5-2: Be able to use appropriate modern tools to simulate, analyze and predict complex environmental engineering and environmental protection equipment problems, and understand the limitations of the tools used and the ways to improve.

Graduation requirement 6: Ability to analyze and evaluate the relationship between engineering and society: Be able to conduct reasonable analysis based on the background knowledge of environmental engineering and mechanical engineering, be able to evaluate the impact of professional engineering practices and solutions to complex environmental engineering, environmental protection equipment problems on society, health, safety, and law, and understand the responsibility to be taken.

Index point 6-1: Have experience in environmental engineering, environmental protection equipment internship and social practices;

Index point 6-2: Familiar with technical standards, intellectual property rights, laws and regulations related to environmental engineering, environmental protection equipment and environmental protection, and be able to use them to analyze and identify the potential impact of the development and application of new technologies and new processes on society, health, safety, law, and culture;

Index point 6-3: Be able to objectively evaluate the impact of environmental engineering projects on society, health, safety, law and culture.

Graduation requirement 7: Ability to understand and evaluate the environment and sustainable development: Be able to understand and evaluate the impact of professional engineering practices for complex environmental engineering and environmental protection equipment issues on the environment and sustainable development of society.

Index point 7-1: Understand the connotation and significance of environmental protection and sustainable social development, and be able to practice the concept of environmental protection and sustainable development when solving complex environmental engineering and environmental protection equipment problems;

Index point 7-2: Be able to evaluate the potential hazards to humans and the environment for actual engineering projects, and can use professional knowledge to propose constructive and scientific solutions.

Graduation requirement 8: Abide by professional standards: Have humanities and social science literacy and a sense of social responsibility, be able to understand and abide by engineering professional ethics and standards in engineering practices, and can perform responsibilities.

Index point 8-1: Have humanistic qualities, understand and practice the core socialist values, respect life, care for others, advocate justice, integrity codes, safeguard national interests, and have a sense of responsibility and mission to promote social progress;

Index point 8-2: Understand the professional nature and responsibilities of environmental engineers, have legal awareness, and consciously abide by professional ethics and regulations in environmental engineering and environmental protection equipment practices.

Graduation requirement 9: Ability to assume individual and team roles: Be able to assume the roles of individuals, team members and leaders in a multidisciplinary team.

Index point 9-1: Be competent in the roles and responsibilities of individuals and members of a team in a multidisciplinary background;

Index point 9-2: Be able to organize team members to carry out works in a multidisciplinary background.

Graduation requirement 10: Ability to effectively communicate and exchange: Be able to effectively communicate and exchange with industry colleagues and the public on complex environmental engineering and environmental protection equipment issues, including writing reports and design manuscripts, presentations, clear expressions or response instructions; have a certain international perspective, and be able to communicate and exchange in a cross-cultural context.

Index point 10-1: Be able to express one's thoughts orally or in writing, and effectively communicate and exchange with colleagues in the industry and the public on complex engineering issues;

Index point 10-2: Master at least one foreign language, have a basic understanding of the international situation of environmental engineering and related fields, and be able to communicate and exchange in a cross-cultural context.

Graduation requirement 11: Engineering project management ability: Understand and master the principles of environmental engineering, environmental protection equipment management and economic decision-making methods, and be able to apply in a multidisciplinary environment.

Index point 11-1: Understand and master important engineering management principles and economic decision-making methods involved in environmental engineering and environmental protection equipment activities;

Index point 11-2: Be able to apply relevant engineering management principles and economic decision-making methods to a multidisciplinary environment.

Graduation requirement 12: Have the consciousness and ability of lifelong learning: Have the consciousness of independent learning and lifelong learning, and have the ability to continuously learn and adapt to development.

Index point 12-1: Be able to correctly understand the necessity of self-exploration and learning, have the awareness of autonomous learning and lifelong learning; master the methods of autonomous learning, understand the ways of knowledge expansion and ability improvement, and be able to maintain interest in new technologies;

Index point 12-2: Be able to take appropriate methods to learn independently, adapt to development, and demonstrate the effectiveness of independent learning and exploration in accordance with personal or professional development needs.

4. Schooling System

Four-year undergraduate education

5. Length of Study

Generally four years. The length of schooling can be flexible from no less than three years to no longer than six years.

6. Requirements for Graduation and Degree Conferring

Students of this program must complete the minimum credits required for each category of courses and complete all the content specified in extracurricular class according to the requirements of the instructional training plan, and the total credits must reach 151 credits for

graduation; those who meet the requirements for bachelor's degree can be conferred bachelor degree in engineering.

7. Discipline

Environmental engineering, mechanical engineering

8. Core Courses

1. Fundamentals of Environmental Chemistry

This course is one of the core courses of this program. Through the study of this course, students will understand basic chemical knowledge such as organic chemistry, analytical chemistry, instrumental analysis, etc. It focuses on the migration and transformation of chemical pollutants in the environment (atmosphere, natural water, soil and living organisms), and the management methods, principles of environmental pollution, and regarding environment, energy, and resources from a chemical perspective, as well as other professional issues, thus broadening students' knowledge and improving their comprehensive scientific literacy.

2. Material Mechanical Engineering

Material of Mechanical Engineering is one of the core courses of this program. Through the study of this course, students will master the basic theories of engineering materials and their performance characteristics, establish the relationship between the chemical composition, organizational structure, processing technology and performance of materials, and understand the application scope and processing technology of commonly used materials, and will obtain the ability to select materials reasonably, correctly determine processing methods, and properly arrange processing routes.

3. Engineering Mechanics

Engineering mechanics is one of the core courses of this program. Through the study of this course, students will be able to master the simplified methods of mechanics and the equilibrium conditions of stressed objects, understand the four basic deformations of objects, master the calculation methods of strength and stiffness, and master the basic theory of object strength under complex stress conditions and its practical applications. This course will cultivate students to become technical talents who have the ability to analyze and solve problems in the application of strength theory under complex stress conditions, force simplification and force balance conditions.

4. Principles of Environmental Engineering

Principles of Environmental Engineering is one of the core courses of this program. Through the study of this course, students will master the technical principles involved in water treatment engineering, air pollution control engineering, solid waste treatment and disposal engineering, polluted environment purification and ecological restoration engineering, extract the basic principles, phenomena and processes with commonality, master the basic principles and technical processes of "isolation technology", "separation technology" and "transformation technology" in environmental pollution control, cultivate their comprehensive ability and systematic, overall optimization concept and ability to solve complex environmental pollution problems.

5. Tolerance fit and technical measurement

Tolerance and technical measurement are one of the core courses of this program. Through the study of this course, students will have a preliminary grasp of the principles and methods of mechanical precision design, establish the basic concepts of measurement technology, understand the principles of commonly used measurement methods and measurement instruments, establish the basic concept of interchangeability, be able to draw tolerance and fit diagrams, be familiar with the basic content and characteristics of the limit and fit system, understand the main content and characteristics of geometric tolerances, and master the principles and methods for selecting tolerances and fits. This course will cultivate students' awareness of precision and the ability to inspect mechanical parts, and develop a "meticulous and perfect" professionalism, so that students can acquire the tolerance and inspection knowledge and skills that mechanical manufacturing technicians must possess.

6. Mechanical principle

Mechanical principle is one of the core courses of this program. Through the study of this course, students will understand the working principles and design calculation methods of various mechanisms, understand and master the relevant theories and design calculation methods of various commonly used mechanisms, master the basic theories and basics of mechanical structure, mechanical kinematics and dynamics, and cultivate the ability in determining transmission system scheme and mechanism design.

7. Mechanical design

Mechanical design is one of the core courses of this program. Through the study of this course, students will understand the general knowledge of mechanical design, main types, performance, structural characteristics, applications, materials and standards of mechanical parts; master the basic principles of mechanical design, the working principle of mechanical parts, force analysis, stress state, failure mode, etc. In terms of the calculation criteria for the working capacity of mechanical parts, students are required to learn the calculation content of load calculation,

conditional calculation, equal strength calculation, equivalent method or equivalent conversion method, trial algorithm and so on. At the same time, this course will cultivate students' sense of innovation, train them to establish correct design ideas and the ability and quality of mechanical system scheme optimization and decision-making.

8. Environmental monitoring

This course is one of major professional basic courses for environmental engineering programs. This course teaches and practices the basic theories and techniques related to environmental monitoring, so that students can use the theories and techniques they have learned to formulate and implement environmental monitoring programs and monitoring techniques, thus laying a solid foundation for learning environmental engineering professional courses and solving practical problems in future.

9. Solid waste treatment and disposal

Solid waste treatment and disposal is one of the core courses of this program. Through the study of this course, students will understand and master the basic concepts, basic principles, main equipment and typical processes of solid waste treatment and disposal, and cultivate the basic ability to analyze and solve the increasingly serious problems of solid waste pollution, thus laying a necessary foundation for them to be engage in solid waste treatment and disposal engineering design, technical management and other works after graduation.

10. Air pollution control engineering

Air pollution control engineering is one of the core courses of this program. Through the study of this course, students will master the basic theories of air pollution control engineering, the basic knowledge of air pollution meteorology, the calculation method of air pollutant diffusion concentration, and the control technology and process of major pollutants. This course will improve students' ability to analyze and solve problems, and will lay a good foundation for professional works, scientific research and environmental management.

11. Water pollution control engineering

Water pollution control engineering is one of the core courses of this program. Through the study of this course, students will master the basic types, control and treatment technology principles and methods, main wastewater treatment processes and operations, etc. of water pollution, understand the basic principles and methods of wastewater treatment plant design, and will be trained to be able to solve actual water pollution problems initially.

12. Environmental protection machinery manufacturing

Environmental protection machinery manufacturing is one of the core courses of this program. Through the study of this course, students will master the principles and processes of environmental protection machinery manufacturing, specifically understand the basic knowledge and applications of casting, forging, welding and other processes, understand the basic knowledge of metal cutting principles, tool angles, tool materials and surface processing of mechanical parts, be familiar with plane processing, cylindrical surface processing, cylindrical gear processing equipment and basic knowledge of processing technology.

13. Design principles of environmental protection equipment

The principle of environmental protection equipment design is one of the core courses of this program. Through the study of this course, students will master the basic knowledge of the principles, design, operation, and management of environmental protection equipment in the fields of wastewater treatment, air pollution control, solid waste treatment and disposal, and noise control. Through the supporting professional course design, students will obtain the ability to select and design various types of environmental protection equipment.

9. Practical Training (Related courses)

Basic engineering training C; cognition practice; production practice; mechanical drawing, surveying and mapping; mechanical design course design; environmental protection equipment process design; graduation practice and graduation thesis, etc.

10. Course Structure and Course Hours (excluding extracurricular class)

Category	Total Credit	%	Total Course Hours	Theory Learning	Practical Training
Public Course	48	32	912	848	64
Basic Course	38	25	608	576	16
Professional Course	26	17	416	388	28
Practical Training	28	19	816	0	816
General Course	10	7	160	160	0
Total	150	100	2912	1972	924
Theory : Practice(%)	68:32				

11. Teaching Schedule (1)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester	
Public Course	Required	School of Marxism	b1080001	Basic principles of Marxism	Test	3	48	42	6	Spring semester 1	
	Required	School of Marxism	b1080003	Ideological and moral cultivation and legal foundation	Non-test	3	48	42	6	Spring semester 1	
	Required	School of Marxism	b1080006	Outline of Chinese Modern History	Non-test	3	48	42	6	Autumn semester 1	
	Required	School of Marxism	b1080004	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics I	Test	3	48	42	6	Autumn semester 2	
	Required	School of Marxism	b1080007	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics II	Test	2	32	28	4	Spring semester 2	
	Required	School of Marxism	----	Situation and Policy (Module 1~4)	Non-test	2	32	28	4	Autumn semester 1 ~ Spring semester 2	
	Required	College of Arts and Sciences	b1020080	Advanced Mathematics A1	Test	4	64	64		Autumn semester 1	
	Required	College of Arts and Sciences	b1020081	Advanced Mathematics A2	Test	4	64	64		Spring semester 1	
	Required	College of Arts and Sciences	b1020012	Linear algebra	Test	2	32	32		Autumn semester 2	
	Required	College of Arts and Sciences	b1020018	College Chinese	Non-test	2	32	32		Spring semester 1	
	Required	College of Arts and Sciences	b1020064	College Physics A(Module 3)	Test	3	48	48		Spring semester 1	
	Required	College of Arts and Sciences	b1020065	College Physics B	Test	2	32	32		Autumn semester 2	
	Required	College of Arts and Sciences	b1020066	College Physics C	Non-test	1	32		32	Autumn semester 2	
	Required	Department of Physical Education	----	Physical Education I~ VI	Non-test	3	160	160		Autumn semester 1 ~ Autumn semester 4	
	Required	Others	b1110003	Military skills	Non-test	0.5	2W			Autumn semester 1	
	Required	College of Arts and Sciences	b1110002	Military theory	Non-test	0.5	32	32		Spring semester 1	
	★ English (Selective 1 Module 10 credits)	Module A	b1020003	General English III	Test	3	48	48		Autumn semester 1	
			b1020004	General English IV	Test	3	48	48		Spring semester 1	
			b1020005	General Academic English A	Test	2	32	32		Autumn semester 2	
			---	English development	Non-test	2	32	32		Spring semester 2	
		Module B	b1020002	General English II	Test	3	48	48		Autumn semester 1	
			b1020003	General English III	Test	3	48	48		Spring semester 1	
			b1020006	General Academic English B	Test	2	32	32		Autumn semester 2	
---			English development	Non-test	2	32	32		Spring semester 2		
Module C		b1020001	General English I	Test	4	64	64		Autumn semester 1		
		b1020002	General English II	Test	3	48	48		Spring semester 1		
		b1020003	General English III	Test	3	48	48		Autumn semester 2		
★ German		College of Arts and Sciences	b1020040	German I	Test	3	48	48		Autumn semester 1	
		College of Arts and Sciences	b1020041	German II	Test	3	48	48		Spring semester 1	
		College of Arts and Sciences	b1020042	German III	Test	4	64	64		Autumn semester 2	
★ Japanese	College of Arts and Sciences	b1020077	Japanese I	Test	3	48	48		Autumn semester 1		
	College of Arts and Sciences	b1020078	Japanese II	Test	3	48	48		Spring semester 1		
	College of Arts and Sciences	b1020079	Japanese III	Test	4	64	64		Autumn semester 2		
Sub-total (Public Course)							48	912	848	64	
General Course	Required	College of Engineering	b1020018	Scientific paper writing and document retrieval	Non-test	2	32	32		Autumn semester 2	
	Selective	Others	b0-----	Social Science and Humanities Literacy (4 credits) Natural Science and Technological Innovation (2 credits) Public Art (2 credits)	Non-test	8	128	128		Autumn, Spring	
Sub-total (General Course)							10	160	160	0	

(★Note: The first foreign language has a total of 10 credits, including College English, German, and Japanese. Choose the appropriate language according to your needs; among them, if you choose College English, please choose the appropriate module in module ABC)

11. Teaching Schedule (2)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester	
Basic Course	Required	College of Engineering	b2013025	Introduction to Environmental Engineering	Non-test	2	32	32		Autumn semester 1	
	Required	College of Engineering	b2013102	Inorganic chemistry	Test	3	48	48		Spring semester 1	
	Required	College of Engineering	b2013080	Physical Chemistry	Test	3	48	48		Autumn semester 2	
	Required	College of Engineering	b2013093	Organic chemistry	Test	3	48	48		Spring semester 1	
	Required	College of Engineering	b2013167	Fundamentals of Environmental Chemistry	Test	3	48	48		Spring semester 2	
	Required	College of Engineering	b2013052	Environmental Engineering CAD	Test	2	32	24	8	Autumn semester 2	
	Required	College of Engineering	b2013036	Engineering Mechanics	Test	2	32	32		Spring semester 2	
	Required	College of Engineering	b2013058	Principles of Environmental Engineering	Test	3	48	48		Spring semester 2	
	Required	College of Engineering	b2013064	Environmental fluid mechanics	Test	2	32	32		Autumn semester 3	
	Required	College of Engineering	b2013037	Tolerance fit and technical measurement	Test	2	32	24	8	Autumn semester 3	
	Required	College of Engineering	b2013066	Mechanical principle	Test	2	32	32		Spring semester 2	
	Required	College of Engineering	b2013125	Environmental mechanical design	Test	3	48	48		Spring semester 3	
	Required	College of Engineering	b2013166	Environmental monitoring	Test	3	48	48		Autumn semester 3	
	Required	College of Engineering	b2013050	Environmental Analytical Chemistry	Test	2	32	32		Autumn semester 2	
Required	Engineering Training Center	b2090005	Electrician and Electronics	Non-test	3	48	32	16	Autumn semester 3		
Sub-total (Basic Course)						38	608	576	16		
Professional Course	Required	College of Engineering	b2013038	Solid waste treatment and disposal	Test	2	32	32		Autumn semester 3	
	Required	College of Engineering	b2013022	Air pollution control engineering	Test	3	48	48		Spring semester 3	
	Required	College of Engineering	b2013075	Water pollution control engineering	Test	3	48	48		Autumn semester 3	
	Required	College of Engineering	b2013082	Physical pollution control	Non-test	2	32	28	4	Autumn semester 3	
	Required	College of Engineering	b2013028	E-waste management and resource technology	Test	2	32	32		Autumn semester 3	
	Required	College of Engineering	b2013065	Environmental impact assessment	Non-test	2	32	28	4	Spring semester 3	
	Required	College of Engineering	b2013044	Manufacturing of environmental protection machinery	Test	3	48	38	10	Autumn semester 4	
	Required	College of Engineering	b2013047	Design principles of environmental protection equipment	Test	3	48	38	10	Autumn semester 4	
	Subtotal (required professional courses)						20	320	292	28	
	★ Selective module 6 credits	by	Module A	b2013051	Water supply and drainage	Non-test	2	32	32		Autumn semester 4
				b2013056	Environmental engineering construction technology	Non-test	2	32	32		Spring semester 3
				b2013055	Environmental Engineering Technology Economy	Non-test	2	32	32		Autumn semester 3
				b2013100	Pure water and mineral water treatment technology and facilities	Non-test	2	32	32		Autumn semester 4
		Module B	b2013060	Environmental planning and management	Non-test	2	32	32		Autumn semester 3	
			b2013048	Environment, health and safety	Non-test	2	32	32		Autumn semester 4	
			b2013089	Circular economy and cleaner production	Non-test	2	32	32		Spring semester 3	
		Module C	b2013084	Modern Environmental Law	Non-test	2	32	32		Spring semester 3	
			b2013057	Environmental Engineering Microbiology	Non-test	2	32	32		Spring semester 3	
			b2013054	Environmental engineering materials	Non-test	2	32	32		Autumn semester 3	
		b2013126	Principles and Technology of Environmental Remediation	Non-test	2	32	32		Autumn semester 4		
Subtotal (professional module courses)						6	96	96			
Subtotal (professional courses)						26	416	388	28		

11. Teaching Schedule (3)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester
Professional Course	Required	College of Engineering	b4000009	Environmental protection equipment engineering innovation and entrepreneurship	Non-test	2	48		48	Spring semester 3
	Required	Engineering Training Center	b4090003	Basic Engineering Training C	Non-test	2	48		48	Spring semester 1
	Required	College of Engineering	b4013031	Cognition internship	Non-test	1	24		24	Summer semester 1
	Required	College of Engineering	b4013052	Inorganic chemistry experiment	Non-test	1	24		24	Summer semester 1
	Required	College of Engineering	b4013046	Professional quality development	Non-test	1	24		24	Summer semester 1
	Required	College of Engineering	b4013030	Mechanical drawing surveying	Non-test	2	48		48	Autumn semester 2
	Required	College of Engineering	b4013027	Fundamentals of Environmental Chemistry experiment	Non-test	1	24		24	Summer semester 2
	Required	College of Engineering	b4013023	Principles of Environmental Engineering course design	Non-test	1	24		24	Summer semester 2
	Required	College of Engineering	b4013084	Professional production practice	Non-test	2	48		48	Summer semester 2
	Required	College of Engineering	b4013028	Environmental monitoring experiment	Non-test	1	24		24	Autumn semester 3
	Required	College of Engineering	b4013034	Water pollution control engineering experiment	Non-test	1	24		24	Spring semester 3
	Required	College of Engineering	b4013020	Solid waste recycling experiment	Non-test	1	24		24	Spring semester 3
	Required	College of Engineering	b4013006	Air pollution control engineering experiment	Non-test	1	24		24	Spring semester 3
	Required	College of Engineering	b4013029	Mechanical design course design	Non-test	2	48		48	Summer semester 3
	Required	College of Engineering	b4013022	Environmental protection equipment process design	Non-test	3	72		72	Summer semester 3
Required	College of Engineering	b4013058	Environmental protection equipment engineering major internship and graduation design (thesis)	Non-test	6	288		288	Spring semester 4	
Subtotal (professional practices)						28	816		816	
Extracurricular Class	Required	Others	b5110001	Extracurricular Class	Non-test	1	-	-	-	Autumn, Spring, Summer
Total						151	2912	1972	924	

★1. Guidance for selecting professional module and practical module:

Module A: Engineering technology, focusing on the design, construction and economic analysis of the project, and cultivating the ability to build environmental protection projects

Module B: Production and operation, focusing on introducing environmental management, clean production and occupational safety, and cultivating environmental management capabilities in the production and operation process

Module C: Environmental governance, focusing on introducing cutting-edge technologies in environmental governance, and cultivating environmental governance project development capabilities

2. Professional Certificates can be gained after learning following courses:

In the teaching process of environmental impact assessment, environmental health and safety and other courses, most of the contents of the vocational qualification certificate (Environmental impact assessment engineer, environmental health and safety (EHS) engineer) is decomposed and completed in the teaching, thus laying a solid theoretical foundation for the vocational qualification assessment and effectively promoting the development of curriculum reform in a deep-level direction that can help improve students' professional quality and employment competitiveness.

12. Schedule for Semesters(Suggested)

Autumn semester 1:

Type	Course Name	Assessment	Credit	Course Hour
Required	Outline of Chinese Modern History	Non-test	3	48
Required	First Foreign Language	Test	3	48
Required	Advanced Mathematics A1	Test	4	64
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education I	Non-test	0.5	32
Required	Military skills	Non-test	0.5	2W
Required	Introduction to Environmental Engineering	Non-test	2	32

Spring semester 1:

Type	Course Name	Assessment	Credit	Course Hour
Required	Basic principles of Marxism	Test	3	48
Required	Ideological and moral cultivation and legal foundation	Non-test	3	48
Required	First Foreign Language	Test	3	48
Required	Advanced Mathematics A2	Test	4	4
Required	College Physics A	Test	3	48
Required	College Chinese	Non-test	2	32
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education II	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Military theory	Non-test	0.5	32
Required	inorganic chemistry	Test	3	48
Required	Organic chemistry	Test	3	48

Summer semester 1:

Type	Course Name	Assessment	Credit	Course Hour
Required	Basic Engineering Training C	Non-test	2	48
Required	Cognition internship	Non-test	1	24
Required	Inorganic chemistry experiment	Non-test	1	24
Required	Professional quality development	Non-test	1	24

Autumn semester 2:

Type	Course Name	Assessment	Credit	Course Hour
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Required	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics I	Test	3	48
Required	First Foreign Language	Test	2	32
Required	Linear algebra	Test	2	32
Required	College Physics B	Test	2	32
Required	College Physics C	Non-test	1	32
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education III	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Scientific paper writing and document retrieval	Non-test	2	32
Required	Physical Chemistry	Test	3	48
Required	Environmental Engineering CAD	Test	2	32
Required	Environmental Analytical Chemistry	Test	2	32
Required	Mechanical drawing surveying	Non-test	2	48

Spring semester 2:

Type	Course Name	Assessment	Credit	Course Hour
Required	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics II	Test	2	32
Required	First Foreign Language	Non-test	2	32
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education IV	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Fundamentals of Environmental Chemistry	Test	3	48
Required	Engineering Mechanics	Test	2	32
Required	Principles of Environmental Engineering	Test	3	48
Required	Mechanical principle	Test	2	32

Summer semester 2:

Type	Course Name	Assessment	Credit	Course Hour
Required	Fundamentals of Environmental Chemistry experiment	Non-test	1	24
Required	Principles of Environmental Engineering course design	Non-test	1	24
Required	Professional production practice	Non-test	3	72

Autumn semester 3:

Type	Course Name	Assessment	Credit	Course Hour
Required	Physical Education V	Non-test	0.5	16
Selective	General Course	Non-test	2	32
Required	Water pollution control engineering	Test	3	48
Required	Tolerance fit and technical measurement	Test	2	32
Required	Environmental fluid mechanics	Test	2	32
Required	Environmental monitoring	Test	3	48
Required	Electrician and Electronics	Non-test	3	48
Required	Solid waste treatment and disposal	Test	2	32
Required	Physical pollution control	Non-test	2	32
Selective	Environmental Engineering Technology Economy	Non-test	2	32
Selective	Environmental planning and management	Non-test	2	32
Selective	Environmental engineering materials	Non-test	2	32
Selective	Environmental planning and management	Non-test	2	32
Required	Environmental monitoring experiment	Non-test	1	24

Spring semester 3:

Type	Course Name	Assessment	Credit	Course Hour
Required	Environmental mechanical design	Test	3	48
Required	E-waste management and resource technology	Test	2	32
Required	Air pollution control engineering	Test	3	48
Required	Environmental impact assessment	Non-test	2	32
Selective	Circular economy and cleaner production	Non-test	2	32
Selective	Modern Environmental Law	Non-test	2	32
Selective	Environmental Engineering Microbiology	Non-test	2	32
Selective	Environmental engineering construction technology	Non-test	2	32
Required	Solid waste recycling experiment	Non-test	1	24
Required	Air pollution control engineering experiment	Non-test	1	24

Summer semester 3:

Type	Course Name	Assessment	Credit	Course Hour
Required	Mechanical design course design	Non-test	2	48
Required	Environmental protection equipment process design	Non-test	3	72

Autumn semester 4:

Type	Course Name	Assessment	Credit	Course Hour
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Required	Physical Education VI	Non-test	0.5	16
Required	Manufacturing of environmental protection machinery	Test	3	48
Required	Design principles of environmental protection equipment	Test	3	48
Selective	Water supply and drainage	Non-test	2	32
Selective	Pure water and mineral water treatment technology and facilities	Non-test	2	32
Selective	Environment, health and safety	Non-test	2	32
Selective	Principles and Technology of Environmental Remediation	Non-test	2	32

Spring semester 4:

Type	Course Name	Assessment	Credit	Course Hour
Required	Environmental protection equipment engineering major internship and graduation design (thesis)	Non-test	6	288

13. Prerequisite for Course Study

No.	Course Name	Prerequisite Course	No.	Course Name	Prerequisite Course
1	Environmental Chemistry	Inorganic chemistry	4	Environmental equipment foundation	Air pollution control engineering
		Organic chemistry			Water pollution control engineering
		Analytical chemistry			Solid waste treatment and disposal
2	Environmental monitoring	Analytical chemistry	5	Environmental Pollution Control Engineering Course Design	Air pollution control engineering
		Instrumental Analysis			Water pollution control engineering
					Physical pollution control
3	Principles of Environmental Engineering	Four major chemistry	6	Comprehensive Environmental Engineering Experiment	Air pollution control engineering experiment
		Environmental fluid mechanics			Water pollution control engineering experiment
					Solid waste treatment and disposal experiment

14. Extracurricular Class

Through taking extracurricular classes, students are encouraged to take part in academic lectures, social practice activities, campus cultural and sports activities, innovative and entrepreneurial activities, voluntary activities, etc. to improve their social adaptability and enhance the competitiveness in the job market. Details are specified in Students' Manual.