

Education Plan for Academic Graduate in Environmental Science and Engineering

(Discipline Code:0830,Award Master Degree of Engineering)

I Objectives

The program provides training for senior Environmental Science and Engineering specialized personnel who can work independently as researcher, technical specialist or manager in Environmental Science and Engineering relevant field, can be qualified for teaching, research and development, management and engineering design and development vacancy of universities and colleges, research institutes, companies and enterprises and other department.

Requires:

1.Master the basic theory of Marxism; adhere to the Party's basic line; establish a rightview of world, outlook of life and sense of worth; love the motherland, abide the laws, honest and faithful, rigorous style of study, unity and cooperation, with good research ethics and professionalism.

2.Master the basic theory and system expertise in the field of solid waste treatment and resource utilization, water pollution control engineering and water resources protection, chemical and control of air pollution, materials and utilization of environmental pollution control, pollution prevention and environmental remediation, environmental biology technical and environmental geographic information system. Also master s foreign language, be able to read and write specialized article fluently.

3.Good health physique and fine psychological quality.

II Disciplinary Research Areas

1. Solid waste treatment and resource utilization.
2. Water pollution control engineering and water resources protection.
3. Chemical and control of air pollution.
4. Materials and utilization of environmental pollution control.
5. Pollution prevention and environmental remediation.
6. Environmental biology technical.
7. Environmental geographic information system.

III Educational System and Years of Study

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Graduate students should have 3 years education system. The period of education should be 3 years, can be extended up to 5 years at most. Credits requirement as followed:

Table 1 Courses and Credits Requirement

Subject	Total Credits	17 Degree Courses Credits17Credits				Optional Courses Credits	Compulsory Sections Credits
		Public Degree Courses			Professional Degree Courses Credits		
		Ideological Political Education	Foreign Language	Mathematic			
Science and Engineering	27	3	4	4	6	5	5

IV Curriculum System and Credit Requirements

Table 2 Curriculum Schedule

Course Category	Course No.	Course Name	Hour	Credit	Semester	School	Remark	
Degree Courses	Public Degree Courses	01821031-040	First foreign language (I,II)(Chinese)	72	4	12	School of Foreign Language	Compulsory
		02121102	Theory and Practice of Socialism with Chinese Characteristics	36	2	1	School of Marxism	
		02121007	Dialectics of Nature	18	1	1	School of Marxism	
		01421063	Applied Mathematical Statistics	36	2	1	School of Science	
		01421065	numerical calculation	36	2	2	School of Science	
	Professional Degree	00861401	Theory of Water Pollution Control	36	2	1	School of Resources and Environmental Engineering	

Course Category	Course No.	Course Name	Hour	Credit	Semester	School	Remark
	00861402	Theory and Technology of Solid Waste Treatment and Resource Utilization	54	3	1	School of Resources and Environmental Engineering	
	00861403	Chemical and Control technology of Air pollution	36	2	1	School of Resources and Environmental Engineering	
	00861404	Modern Technology of Environmental Analysis	36	2	1	School of Resources and Environmental Engineering	Compulsory for Environmental Direction
	00821405	Advanced Environmental Microbiology	36	2	1	School of Resources and Environmental Engineering	
	00821406	Theory and utilization of Environmental Materials	36	2	1	School of Resources and Environmental Engineering	
	00861407	Environmental Assessments, Planning and Managements	36	2	1	School of Resources and Environmental Engineering	
	00861408	Resources and Environmental Information System	36	2	1	School of Resources and Environmental Engineering	
	00861409	Environmental Remote Sensing	36	2	1	School of Resources and Environmental Engineering	

Course Category		Course No.	Course Name	Hour	Credit	Semester	School	Remark
		00861410	Big Data Geographic Information System	36	2	1	School of Resources and Environmental Engineering	
		00861411	GIS Modeling and Utilization	36	2	1	School of Resources and Environmental Engineering	
Optional Courses	Professional Theory Courses	00862412	Environmental Science and Engineering Specialized English	18	1	1	School of Resources and Environmental Engineering	Compulsory for Environmental Direction
		00862413	Development of Environmental Science and Engineering	36	2	1	School of Resources and Environmental Engineering	
		00862414	Theory and Utilization of Environmental Biotechnology	36	2	1	School of Resources and Environmental Engineering	
		00862415	Molecular Biological Analyze Technology	36	2	1	School of Resources and Environmental Engineering	
		00862416	Technology and Theory of Catalysis and Oxidation in Environmental Engineering	36	2	1	School of Resources and Environmental Engineering	
		00862417	Pollution Ecology	36	2	1	School of Resources and Environmental Engineering	
		00862418	Colloid and Interface	36	2	1	School of Resources and	

Course Category	Course No.	Course Name	Hour	Credit	Semester	School	Remark	
		Chemistry				Environmental Engineering		
	00862419	Chemical of Pollution Control	36	2	1	School of Resources and Environmental Engineering		
	00862420	Geographic Information System Specialized English	18	1	1	School of Resources and Environmental Engineering	Compulsory for GI Direction	
	00862421	GIS Development and Frontier of GIS	36	2	1	School of Resources and Environmental Engineering		
	00862422	Geographic Information System Engineering	36	2	1	School of Resources and Environmental Engineering		
	00862423	Space Data base	36	2	1	School of Resources and Environmental Engineering		
	Professional Experimental Courses	00822424	Environmental Organic Analysis Experiment	18	1	1	School of Resources and Environmental Engineering	12 At least 1 and at most 2 should be selected for Environmental Direction
		0082425	Environmental physical and chemical analysis experiment	18	1	1	School of Resources and Environmental Engineering	
		00822426	Environmental Metal Elements Analysis Experiment	18	1	1	School of Resources and Environmental Engineering	
		00822427		18	1	1	School of	

Course Category		Course No.	Course Name	Hour	Credit	Semester	School	Remark
			Waste Water Physical and Chemical Treatment Experiment				Resources and Environmental Engineering	
		00822428	Environmental Biology Experiment	18	1	1	School of Resources and Environmental Engineering	
		00841414	3S Integrated Experiment of 3S Technology Tntegration	36	2	1	School of Resources and Environmental Engineering	Compulsory for GI Direction
	Trans-Disciplinary selective course		Specific courses in the principles	18	1	1-2	Graduate School	At least choose one course
Compulsory Sections		00824004	Practical Section for Graduate Students of School of Resources and Environmental Engineering	54	3	4	School of Resources and Environmental Engineering	Compulsory
		00824002	Thesis Proposal and Mid-term Examination	18	1	3	School of Resources and Environmental Engineering	Compulsory
		00824003	Academic Activities for Graduate Students of School of Resources and Environmental Engineering	5	1	3	School of Resources and Environmental Engineering	Compulsory

V Compulsory Courses

(1) Practice Section

Participation of professional practice, social practice, innovation and entrepreneurial activity, competition, accomplishment of high level thesis, patent achievement and other achievement are equal to 1 credit. The section can be exempted for on-the-job graduate students without credits, lacking credits should be replaced by participation of extra optional courses. Simulation of application report and 20 minutes PPT presentation of at least province (city) level vertical project with Nature (Social) Science Foundation can be equal to 2 credits after inspection of supervisor.

Thesis Proposal and Mid-term Examination

With guidance of supervisor, thesis proposal report should be accomplished after these reading, situation investigation and research, and then confirm degree thesis topic after inspection. Passed thesis proposal report is equal to 1 credit of compulsory section.

Graduate students must be participate in mid-term examination. Detail requirement of thesis proposal and mid-term examination of graduate students refer to graduate students manual “Regulations of Mid-term Examination and Thesis Proposal of Graduate Students”.

(2) Academic Activities

Graduate students should have at least 5 times of participation of academic activities, 500 letters article about what one has learned should be accomplished after each activity. Article should include: the time, place, lecturer, topic and experience of the academic activities. Accomplishment is equal to 1 credit.

VI Scientific Research and Dissertation

Before approval submission of degree thesis of full-time academic graduate students, referent thesis should be at least 1 published on at least C rank journal (including receive notify) or at least 1 referent patent authorization.

Graduate degree thesis is important part of graduate education. Thesis topic selection should be actually significant and academically valuable for national economy, should be beneficial for graduate students to develop oneself innovation ability and comprehension and utilization of knowledge to discover, analyze and solve problems.

Graduate degree thesis require innovate opinions on the research topic, should provide strong theoretical significance and practical value. Thesis work requires certain difficulty, deepness, scope and workload. Thesis should prove that the author possess enough ability to work as reference researcher or technician independently. Graduate degree thesis should pass “Thesis Misconduct Literature Check(TMKC2)” and meets other referent requirements from academic degrees evaluation committee of university.

VII Cultivation Mode and Method

Graduate students will be educated with combined system of supervisor (supervisor group) responsibility and department collection education system. Allowed full play of leading role of supervisor and also inspire supervisor (supervisor group) and community enthusiasm, provides development of both political ideology and academy.

1. Insist the combined education method of lecture and self-discussion, develop the ability of analyze and solve the problem independently. Widely and flexibly adopt education methods of examples, topic lectures, debate, research, academic salon, academic report and lecture.

2. In principle, regards courses study and science research thesis work as equally important. Knowing basic theory and system specialized knowledge well, also developing ability to work as

researcher or technician independently.

3. Graduate students should be participate in necessary academic and practical activities, enhance ability training and development of science research, self-study, work, presentation and writing.

4. Various education method should be adapted, emphasize the initiative and willingness of graduate student under training.

VIII Others

1. To examine the effects of instruction, ensure the quality, the items listed in the program must have an assessment. Assessment methods and performance assessment methods need to be clearly stated in the course syllabus.

2. Academic graduates are required to get the credits before thesis proposal. Students are allowed to take some of the other elective courses according to the dissertation after thesis proposal. All the courses shall be completed before the application of dissertation defense.

3. Each discipline shall make specific regulations and requirements in the amount of literature to be read for the students during the study period. Graduates should review more than 40 pieces of literature at home and abroad, in which foreign literature shall be no less than one third.

4. Academic graduates shall report their own learning and research work to the supervisor at least once a month at the course learning stage, and at least twice a month during the paper sessions, which shall be institutionalized and clearly clarified in the programs.

5. This program will enact from 2016.