MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

VIETNAM NATIONAL UNIVERSITY OF AGRICULTURE

SOCIALIST REPUBLIC OF VIETNAM

Independence - Freedom - Happiness

GRADUATE TRAINING PROGRAM

Program name: **Applied Environmental Science**

Education level: **Master**

Specialization: **Environmental Science**

Specialization code: **8 44 03 01**

Type of training: **Regular/Full-time**

(*Issued by Decision No. . signed on .../..../2018 by the President of Vietnam National University of Agriculture*)

1. Training objectives

1.1. General objective

The postgraduate on applied environmental science training program provide students with advanced knowledge for comprehensively development and professional skills to be able to undertake the duties in environmental protection and treatment related to all agro-industrial production, institutions, universities. At the same time, the master studen can meet the requirements with the development of the industry and society.

1.2. Specific objectives

Graduated student in the field of applied environmental science:

Program objective 1 (PO1): Systematizing technical and environmental issues related to waste management and pollution control.

Program objective 2 (PO2): Designing a waste treatment system (exhaust gas, wastewater, contaminated soil) to management requirements and environmental protection.

Program objective 3 (PO3): Mastering the organizing skills, planning research work, working independently

Program objective 4 (PO4): Forming personal characteristic and perspectives in solving environmental problems according to the goal of comprehensive environmental protection as well as teaching at universities and colleges.

2. Expected Learning Outcome (ELO)

2.1. Knowledge

2.1.1. General knowledge

ELO1: Understand the system of scientific knowledge and basic principles of Marxism - Leninism; Ho Chi Minh Thought; Policies and guidance of the Party, State and laws.

2.1.2. Professional knowledege

ELO2: Assessment of technologies and polution control techniques for environmental protection and sustainable development.

ELO3: Apply ecological knowledge in resource management and use to maximize the self-recovery of the environment and sustainable use of natural resources.

ELO4: Evaluate the thematic reports in the field of natural resources and environment

ELO5: Calculation of waste treatment technology and solutions (wastewater, exhaust gas, solid waste) for application of biological, chemical and physical technologies.

ELO7: Apply legal knowledge in management and operation of environmental treatment; environmental monitoring and pollution control program,...

2.2. Skills

2.2.1. General skills

ELO8: Proficiently use of specialized software for the environmental field in relation to GIS, Remote Sensing, Modeling and statistical data processing (Stella, GIS, Statgraphic...).

ELO9: Meet the English requirement at B1 level according to the European Standard or equivalent.

ELO10: Read, understand and write documents in English related to the environment issues.

2.2.2. Professional skills

ELO11: Establish a technology assessment plan for pollution control and process improvement.

ELO12: Evaluation of experimental results for application in the selection of technical options and pollution control technologies

ELO13: Design a treatment system in association with the socio-economic development and environmental protection.

ELO14: Research and development of technology in pollution treatment for public application.

2.3. Attitute

ELO15: Team work: promote collective intelligence in management and professional activities.

ELO16: Professional guidance in the formulation and implementation of plans for environmental protection and pollution remediation of production facilities.

ELO17: Responsible for research results and published conclusions.

2. Training period: 1.5 - 2 years

3. Total credits of the course: Total 60 credits

4. Eligible candidates:

4.1. Right, suitabe training program

Environmental science; Enviromental engineering; Environmental Technology; Environmental Management; Natural Resource Management and Environment.

4.2. Closed/relevant training program

Group 1: Soil Science; Natural resource management; Water resource management; Water resource engineering; Environmental chemistry; Chemical engineering; Biotechnology; Food Technology, Meteorology, Hydrology, Geography, Geology, Plant Protection, Agrochemistry, Aquaculture, Animal Husbandry, Irrigation, Forestry.

Group 2: Plant science; Technical pedagogy; Veterinary; Chemistry pedagogy; Pedagogy of Biology; Land Management; Cadastral; The law; International law; Agricultural economy; Economic management; Mechanical, Electromechanical, Information Technology

The knowledge that needs to be supplemented for the closed/relevant group of training program (1 and 2)

No	Subject	Credit	Group 1	Group 2
1	Environmental pollution	2	x	x
2	Principal ecology	2	x	x
3	Environmental technology	2	x	x
4	Environmental impact assessment	2		x
5	Environmental Management	2		x

4.3. Entrance Exams Subjects

Environmental pollution; Environmental management, English

5. Training process, graduation conditions:

Based on the Decision No. 4581/QD-HVN, signed on November 10, 2017 re: Regulations on Master's training at Vietnam Academy of Agriculture by the President of Vietnam University of Agriculture.

6. Scale: Bench scale10 (the score then converted to a scale of 4)

7. Program content (name and volume of modules):

No	Code	English name	Total	Theory	Practice	Compulsory	Elective
		Total of fundamental credits	**9**			**9**	0
1	ML06001	Marxism and Leninism Philosophy	3	3	0	x	
2	SN06003	English	2	2	0	x	
3	MT06023	Physisco-chemical principles of environmental treatment	**2**	1,5	0,5	x	
4	MT06036	Biological principles of environmental treatment	2	1,5	0,5	x	
		Total of specialized basic credits	**12**			**12**	0
5	MT06025	Biotechnology in Environmental protection	**3**	1,5	1,5	x	

6	MT06026	Toxicology in envieonmental and control	**2**	1,5	0,5	x	
7	MT06033	Applied Environmental System Analysis	**3**	3	0	x	
8	MT07060	Advance environmental chemistry	**2**	1,5	0,5	x	
9	MT06037	Advance hazardous waste management	**2**	2	0	x	
		Total of specialized credits	**9**			**9**	**0**
10	MT07032	Advance Modeling for Environmental Studies	**3**	2	1	x	
11	MT07064	Water quality Engineering	**2**	1	1	x	
12	MT07065	Air quality Engineering	**2**	1	1	x	
13	MT07068	Advanced in Solid waste treatment engineering	**2**	1	1	x	
		Total of supplementary credits	**36**			**0**	**18/36**
14	MT06020	Climate change and Environment	**3**	2	1		x
15	MT07062	Project on waste treatment	**2**	0.5	1.5		x
16	MT07052	GIS and Remote Sensing Appications for Environmental	2	1	1		x
17	MT07066	Applied ecology in Advance	**3**	2	1		x
18	MT07067	Advanced in Environmental Impact and Ecological Rick Assessment	**3**	2	1		x

19	MT06034	Intergrated environmental management 1	**2**	1,5	0.5		x
20	MT06035	Intergrated environmental management 2	**2**	1.5	0.5		x
21	MT07071	Environmental Analysis	**2**	2,0	0		x
22	MT07073	Environmental risk management	**3**	2	1		x
23	MT07074	Project on treatment of environmental pollution by biotechnology	**2**	0,5	1,5		x
24	MT07075	Advanced Environmental Research Methods)	**2**	2	0		x
25	KT07024	Environmental economics	**3**	3	0		x
26	MT07077	Design on waste treatment projects	**2**	1	1		x
27	MT07078	Field trip 2	**2**	0	2		x
28	QL07060	Intergrated watershed management	**3**	3	0		x
29	**MT07997**	Master thesis	**12**	0	12	**12**	