

I. PROGRAM OBJECTIVES AND EXPECTED LEARNING OUTCOME (ELO)

1.1. Program objective

The Soil Science program trains staff with professional competence, professional ethics, ability to work independently and apply professional knowledge to solve problems in Soil Science.

Specific objectives

Graduated students in the field of Soil Science able to:

Program objective 1 (PO1): Master and approach theoretical and methodological issues in the field of Soil Science;

Program objective 2 (PO2): Solve practical problems in the field of Soil Science and related fields;

Program objective 3 (PO3): Love the job, be responsible at work, respect colleagues and have professional ethics.

1.2. Expected Learning Outcome (ELO)

Upon completion of the training program, students have the following knowledge, skills, attitude:

Content	Expected Learning Outcome (ELO)
General knowledge	ELO1: Apply knowledge of mathematics, natural sciences, politics, society and humanities to the field of soil and life sciences.
Professional knowledge	ELO2: Identify methods to evaluate physical, chemical and biological properties of soil to perform well the tasks of soil science;
	ELO3: Evaluation of phylogenetic and metabolic processes in soil and soil - water - nutrition - crop relationship to perform well the tasks of soil science;
	ELO4: Proposing solutions to rationally use and protect land resources, improve land use efficiency.
General skills	ELO5: Apply critical and creative thinking to effectively solve research and technology transfer problems in soil science.
	ELO6: Team work and lead the team to achieve set goals
	ELO7: Communicate effectively orally, in writing, and in multimedia with stakeholders in a diverse, multicultural environment and fluently in English.

Professional skills	ELO8: Combined application of information technology and modern equipment to effectively analyze soil, water, fertilizers, crops and develop specialized maps
	ELO9: Apply skills in investigation, information collection, processing, and experimental arrangement to solve problems in the field of soil science.
	ELO10: Proficiently performing administrative and legal operations related to the field of soil science
Attitude	ELO11: Complying with the law, respecting the culture of the organization, professional ethical standards, responsibility in the management and use of land for sustainable development
	ELO12: Figure out a clear future orientation, passion for career and a sense of lifelong learning

II. CAREER ORIENTATION AFTER GRADUATION

Graduates of Soil Science can work in the following positions and fields:

- + Managers, sales staff, technical staff at fertilizer research and production companies;
- + Officials and specialists working at specialized agencies of the Ministry of Agriculture and Rural Development, the Ministry of Natural Resources and Environment, the Ministry of Science and Technology, the Ministry of Education and Training;
- + Specialists in soil science, agrochemistry - soil science or soil science at Departments of Agriculture and Rural Development, Departments of Natural Resources and Environment of provinces and cities; Departments of Agriculture and Rural Development, Division of Natural Resources and Environment of districts, cities and towns; Agricultural Extension Centers of provinces/cities. Technical staff at environmental companies;
- + Researchers at research institutes with research fields related to soil science;
- + Teachers teach subjects on agrochemistry, soil science of all levels according to regulations at universities, agricultural intermediate schools, natural resources and environment
- + Analytical technicians in soil, water, fertilizer and environmental analysis laboratories.

Job positions: Leaders of agricultural cooperatives, agricultural extension officers, managers, sales staff, technical staff at research companies, Analytical technicians, Teaching teachers subjects in agrochemistry and soil science.

Working agency: Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, Ministry of Science and Technology, Ministry of Education and Training; Departments of Agriculture and Rural Development, Departments of Natural

Resources and Environment of provinces and cities; Divisions of Agriculture and Rural Development, Divisions of Natural Resources and Environment of districts, cities and towns; Agricultural Extension Centers of provinces/cities

3. ORIENTATION FOR ADVANCED LEARNING AFTER GRADUATION

Graduates in the field of Soil Science can continue to study to improve their qualifications at home and abroad in the following disciplines and majors:

- + Master program in Soil Science, Agrochemistry - Soil, Agricultural Chemistry;
- + Master program in Land Management;
- + Master program of Environmental Science;
- + Doctor program in Soil Science;
- + Doctor program in Land Management;
- + Doctor program in Environmental Science.

IV. PROGRAM CONTENT (NAME AND VOLUME OF MODULES):

No	Year	code	English name	Total	Theory	Practice	Compulsory	Previous Course	code
	TOTAL GENERAL COURSES			40					
1	1	ML01001	Basic principles of Marxism Leninism 1	2	2.0	0.0	x		
	1	ML01002	Basic principles of Marxism-Leninism 2	3	3.0	0.0	x		
2	1	ML01009	<i>Introduction to laws</i>	2	2	0	x		
3	1	SN01032	English No1/	3	3.0	0.0	x	Basic chemistry	MT01001
4	1	SN01033	English 2/	3	3	0	x	English No1/	SN01032
5	1	TH01007	Probability and statistics	3	3	0	x		
6	1	MT01001	Basic chemistry	2	1.5	0.5	x		
7	1	TH01009	Basic biology	2	1	1	x		
8	1	QL02005	<i>Geology</i>	3	2	1	x		
9	1	MT02033	Basis microbiology	2	1.5	0.5	x		
10	1	ML01005	Ho Chi Minh ideology	2	2	0	x		
11	1	ML01004	Revolutionary guidelines of the Vietnamese communist party	3	3.0	0.0	x		

No	Year	code	English name	Total	Theory	Practice	Compulsory	Previous Course	code
12	1	MT01002	Organic chemistry	2	1.5	0.5	x	Basic chemistry	MT01001
13	1	MT01004	Analytic chemistry	2	1.5	0.5	x	Basic chemistry	MT01001
14	1	MT02003	Environmental chemistry	2	1.5	0.5	x	Basic chemistry	MT01001
15	1	MT01006	Agrometeorology	2	1.5	0.5			
16	1	MT01008	Ecology - Environment	2	2.0	0.0			
17	1	QL02017	Cartography	2	1.5	0.5			
	TOTAL BASED MAJOR COURSES			20					
18	2	QL02019	Geological Information System (GIS)	2	2.0	0.0	x		
19	2	QL02020	Geographic Information System Practice	1	0.0	1.0	x		
20	2	NH02005	<i>Design of experiments</i>	2	0.5	1.5	x		
22	2	QL02008	<i>General Pedology</i>	2	1.5	0.5	x	Basic chemistry	MT01001
23	2	QL02007	<i>Soil chemistry</i>	3	2	1	x	<i>General Pedology</i>	QL02008
24	2	QL02010	Soil Physics	3	2.0	1.0	x		
25	2	QL02026	Geodesy 1	3	2.0	1.0	x		
26	2	KT03037	Agricultural statistics	3	3.0	0.0	x		
27	2	QL02029	Remote sensing	2	1.5	0.5	x		

No	Year	code	English name	Total	Theory	Practice	Compulsory	Previous Course	code
28	2	ML03025		2	2.0	0.0	x		
29	2	MT02032	Soil Biology	2	2.0	0.0	x		
	TOTAL MAJOR COURSES			70					
30	3	SN03054	<i>English for Land Management</i>	2	2	0	BB	English 2/	SN01033
31	3	QL02009	<i>Specialized Pedology</i>	2	1.5	0.5	BB	<i>General Pedology</i>	QL02008
32	3	QL03043	<i>Fertilizer</i>	2	1.5	0.5	BB	<i>General Pedology</i>	QL02008
33	3	QL03044	<i>Scientific basis of fertilization</i>	3	2	1	BB	<i>Fertilizer</i>	QL03043
34	3	QL03014	<i>Land evaluation</i>	2	2	0	BB	<i>Specialized Pedology</i>	QL02009
35	3	QL03019	<i>Soil and water analysis</i>	3	1	2	BB		
36	3	QL03045	<i>Fertilizer and plant analysis</i>	2	0.5	1.5	BB	<i>Fertilizer</i>	QL03043
37	3	QL03057	Agrohydrology for soil reclamation	2	1.5	0.5	BB	<i>General Pedology</i>	QL02008
38	3	QL03087	Land use planning	2	2.0	0.0	BB		
39	3	QL03022	Soil Classification and soil mapping	2	2.0	0.0	BB	<i>Specialized Pedology</i>	QL02009
40	3	KT03012	Land Economics	2	2.0	0.0	BB		

No	Year	code	English name	Total	Theory	Practice	Compulsory	Previous Course	code
41	3	QL03015	Sloping land and soil erosion	2	2.0	0.0	BB		
42	3	QL03053	Applied informatics in mapping	2	1.0	1.0	BB		
43	3	QL03021	Soil degradation and rehabilitation	2	2.0	0.0	BB	<i>Specialized Pedology</i>	QL02009
44	4	QL04014	Fieldtrips 1	4	0	4	BB		
45	4	QL04015	Fieldtrips 2	16	0.0	16.0	BB	<i>Soil and water analysis</i>	QL03019
46	4	QL04996	<i>Thesis of Agrochemistry</i>	10	0	10	BB	Fieldtrips 1, 2	QL04014, QL04015
47	4	QL03023	Fertilizer application for plant 1	2	2.0	0.0	TC	<i>Fertilizer</i>	QL03043
48	4	MT02004	Analytic chemistry by instruments	2	1.0	1.0	TC		
49	4	QL03016	Soils of the World	2	2.0	0.0	TC	<i>Specialized Pedology</i>	QL02009
50	4	QL03028	Land Administration	2	2.0	0.0	TC		
51	4	QL03036	Agricultural Planning	2	1.5	0.5	TC	<i>Fertilizer</i>	QL03043
52	4	QL03047	Biological indicators for environment	2	2.0	0.0	TC	Basis microbiology	MT02033

No	Year	code	English name	Total	Theory	Practice	Compulsory	Previous Course	code
53	4	QL03018	Soil contamination	2	2.0	0.0	TC	<i>General Pedology</i>	QL02008
54	4	QL03017	Soil fertility	2	2.0	0.0	TC	<i>General Pedology</i>	QL02008
55	4	QL03020	Paddy soils	2	2.0	0.0	TC	<i>General Pedology</i>	QL02008

