

NATURAL RESOURCES AND ENVIRONMENT MANAGEMENT UNDERGRADUATE TRAINING PROGRAM

1. Description of the undergraduate training program

1.1 Introduction

The undergraduate training program for Engineers in Natural Resources and Environment Management aims to develop the training program to meet national standards, contributing to improving the qualifications of students with knowledge, skills, and qualities. politics, ethics, professional behavior, and good health to be able to work effectively in the fields related to natural resources and the environment.

1.2 General information

Program name	Natural resources and Environment Management
Training program code	7850101
Issuing university	Nam Can Tho University
Degree name	Engineer in Natural Resources and Environment Management
Level of training	Undergraduate
Required credits	150
Training form	Full-time
Training duration	5 years
Admission requirements	High school graduates
Grading scale	10
Graduation requirements	<ul style="list-style-type: none">- Students must have accumulated enough credits and completed all the required courses of the training program, with a total of 150 credits;- Students must have a cumulative grade point average (GPA) of 5.0 or higher for all courses throughout the entire program;- Students must meet the university's general requirements for English and computer proficiency standards;- Students must meet the program's requirements for soft skills and professional skills;- Students must have completed the national defense and security education program and fulfilled all the required courses.
Job positions	Graduates of Natural Resources and Environment Management have the opportunity to work at: <ul style="list-style-type: none">- Governmental organizations in the management of natural resources and environment (from the center to the local) such as the Ministry, Department, Department of

	<p>Natural Resources and Environment; Ministry, Department of Science and Technology; The Ministry, the Department of Agriculture and Rural Development, the Environmental Police of the Ministry of Public Security, etc.</p> <ul style="list-style-type: none"> - International organizations, governmental and non-governmental organizations, and private consulting firms operating in the field of exploitation, use, and protection of natural resources and the environment. - Research institutes, centers, and universities for scientific research, application, and implementation of research topics into practice in the field of natural resources and the environment. - Enterprises producing industrial products, processing agricultural products, services, and trading have generated waste in the process of their operation.
Advanced education and training	Graduates can pursue master's and doctoral degrees both domestically and internationally.
Reference curriculum	Can Tho University, Thai Nguyen University of Agriculture and Forestry, Nha Trang University
Time of updating	8/2022

1.3 Training goal

1.3.1 General objectives

With the teaching and learning methods are educational approaches based on the output standards of the training program, thereby designing the output standards of each course. Based on this basis, the Faculty develops teaching plans, conducts teaching, training program outlines, teaching methods, learning methods, and assessment tools. After completing the course, conduct a course assessment and proceed to program evaluation to improve the output standards of the program, ensuring it meets the needs of society and international integration. Studying Natural Resources and Environment Management at DNC, students will be equipped with the following specific knowledge and skills:

- Acknowledge from basic to specialized level environmental standards, laws and policies, operating mechanisms of chemical, biological, and physical transformation processes related to the environment, and the environmental analysis field.
- Ability to assess the influence of environmental factors on public health through monitoring techniques and environmental pollution treatment processes.
- Having good political and moral qualities, having the ability to self-study, self-research, create and solve requirements, theoretical and practical problems in natural resources and environment management, capable of adapting to the working environment, adapting to lifelong learning.

1.3.2 Detailed objectives

M1: Understanding and applying the foundational and in-depth knowledge of the field of Natural resources and Environment Management to professional work.

M2: Forming professional ideas in Natural resources and Environment Management and developing the capacity to manage and run work on an individual and collective scale.

M3: Meet the requirements of professional skills, and soft skills from society, working, and research environment.

M4: Organizing and implementing professional activities in Natural resources and Environment Management, thereby developing creative capacity at work.

M5: Forming the ability to self-study and self-research in the professional field, thereby developing the corresponding competencies in the whole life and guiding the people around and changing and improving their lives.

2. Training duration: 4 years

3. The total credit volume of the course: 150 credits (excluding Physical Education and National Defense - Security courses), distributed as follows:

KNOWLEDGE	Compulsory knowledge	Elective knowledge	Total
General education knowledge	47	0	47
Professional education knowledge	85	18	103
- Basic knowledge of the field	33	6	39
- Specialized knowledge	48	6	54
- Graduation internship	4	0	4
- Graduation thesis/Alternative courses		6	6
Total credit volume	132	18	150

4. Admission requirements:

Admission is based on the results of the National High School Graduation Examination or the evaluation of academic records at the high school level in accordance with the combination of subjects for each major and admission is open nationwide.

5. Training process and graduation requirements

5.1 Training process

Implement the university and college training regulations in the credit system and the current training regulations of Nam Can Tho University.

5.2 Graduation requirements

- Students who complete the training program are evaluated for graduation and recognized as graduates according to Article 27 of the credit-based training regulations.
- Attain the required level of English and computer skills in accordance with the university's general regulations (in terms of computer skills, students must attain modules 01 to 06 of the standard for using information technology skills according to Circular 03/2014/TT-BTTTT)
- Obtain certificates in National Defense-Security Education, Physical Education, Soft Skills, and Professional Skills.
- Evaluate the sectional score and course grade according to Articles 22 and 23 of the credit-based training regulations.
- Academic rankings and graduation rankings are determined in accordance with Articles 14 and 28 of the credit-based training regulations.

6. Curriculum Content

6.1 General education knowledge

No.	Course code	Course name	Credits	Lecture	Practice	Type
A	Political theory		11			
1	0101000889	Marxist-Leninist philosophy	3	3		GE
2	0101000641	Political Economy	2	2		GE
3	0101000890	Science socialism	2	2		GE
4	0101000900	Ho Chi Minh Ideology	2	2		GE
5	0101000869	History of the Communist Party of Vietnam	2	2		GE
B	Humanities and Social Sciences		6			
6	0101000891	Introduction to law	2	2		GE
7	0101000881	General logics	2	2		GE
8	0101000903	General society study	2	2		GE
C	Foreign Language		12			
9	0101000861	General English 1	3	3		GE
10	0101000862	General English 2	3	3		GE
11	0101000863	General English 3	3	3		GE
12	0101000169	Specialized English for Natural Resources Management	3	3		GE
D	Math, Informatics, Natural Science		18			
13	0101000892	General biology	2	2		GE
14	0101000957	General Biology – Practice	1		1	GE
15	0101000269	General Analytical chemistry	2	2		GE
16	0101000270	General Analytical chemistry – Practice	1		1	GE
17	0101000898	Advanced Math 1	3	3		GE
18	0101000883	Probability theory and mathematical statistics	3	3		GE
19	0101000902	General Physics	2	2		GE
20	0101000960	General Physics – Practice	1		1	GE
21	0101000896	Basic Informatics	3	2	1	GE
E	Physical Education		3			
22	0101000872	Physical Education 1*	1		1	CD
23	0101000873	Physical Education 2*	1		1	CD
24	0101000874	Physical Education 3*	1		1	CD
F	National Defence Education		8			
25	0101000871	National Defence Education*	8	5	3	CD

(*) Conditional courses, cumulative GPA is not calculated

6.2 Professional education knowledge volume

No.	Course code	Course name	Credits	Lecture	Practice	Type
Basic knowledge of the field			33+6			
1	0101000303	Hydrometeorology	3	3		CP
2	0101000229	Environmental Science Foundation	3	3		CP
3	0101001238	Statistics of environmental experiments	3	2	1	CP
4	0101000154	Geodetic	2	2		CP
5	0101000155	Geodetic-Practice	2		2	CP
6	0101000253	Geographic information systems and remote sensing	2	2		CP
7	0101000254	Geographic Information Systems and Remote Sensing – Practice	1		1	CP
8	0101000147	Hydraulic	2	2		CP
9	0101000282	Natural Resources and Environment Economics	2	2		CP
10	0101000745	Law on natural resources and environment	3	3		CP
11	0101000374	Environmental planning	2	2		CP
12	0101000233	Water quality	2	2		CP
13	0101000351	Research methods in environmental science	3	2	1	CP
14	0101000135	Applied Informatics Engineering 1 (AutoCAD 2D)	3	1	2	CP
15	0101000385	Climate Change	2	2		EL
16	0101000240	Population - health - environment	2	2		EL
17	0101000014	Water supply and drainage	2	2		EL
18	0101000391	Calculating and forecasting water demand	2	2		EL
19	0101000851	Natural resource and environmental communication	2	2		EL
20	0101001063	Disaster and risk management	2	2		EL
Specialized knowledge			48+6			
21	0101000371	Environmental monitoring and analysis	2	2		CP
22	0101000373	Environmental monitoring and analysis - Practice	1		1	CP

No.	Course code	Course name	Credits	Lecture	Practice	Type
23	0101000380	Planning and managing water resources	2	2		CP
24	0101000362	Natural resources and environment management	3	3		CP
25	0101000038	Environmental impact assessment	3	3		CP
26	0101001235	Environmental impact assessment - Practice	1		1	CP
27	0101000106	Wastewater treatment technology	2	2		CP
28	0101000107	Wastewater treatment technology - Project	1		1	CP
29	0101000316	Environmental modeling	2	2		CP
30	0101000361	Urban and industrial environment management	2	2		CP
31	0101001061	Urban and industrial environment management - Practice	1		1	CP
32	0101001236	Agricultural and rural environment management	2	2		CP
33	0101001237	Agricultural and rural environment management - Practice	1		1	CP
34	0101001062	Marine resources and environment management	2	2		CP
35	0101001542	Marine resources and environment management - Practice	1		1	CP
36	0101000363	Land resource management	2	2		CP
37	0101000364	Forest resource management	2	2		CP
38	0101000365	Forest resource management - Practice	1		1	CP
39	0101000355	Solid and hazardous waste management	2	2		CP
40	0101000356	Solid and hazardous waste management - Practice	1		1	CP
41	0101000279	Controlling air and noise pollution	2	2		CP
42	0101000210	Environmental technology	2	2		CP
43	0101000639	Resource and environment audit	3	3		CP

No.	Course code	Course name	Credits	Lecture	Practice	Type
44	0101000163	Occupational safety and environmental hygiene	3	3		CP
45	0101000407	Energy saving and management	2	2		CP
46	0101000408	Management and reuse of organic waste	2	2		CP
47	0101000466	Environmental Toxicology	2	2		EL
48	0101000420	Land pollution and degradation treatment	2	2		EL
49	0101000386	Environmental bioindicator	2	2		EL
50	0101000394	Environmental protection inspection	2	2		EL
51	0101000357	Wetland Management	2	2		EL
52	0101000779	Environmental investment project management	2	2		EL
Graduation practicum						
53	0101000406	Internship at the end of the course	4		4	CP
Graduation thesis/Alternative courses			6			
54	0101000306	Graduation Thesis	6		6	EL
55	0101000366	Community-based natural resources management	3	2	1	EL
56	0101000242	Assessment of soil, water, and air quality	3	2	1	EL

* **Note:** GE: General; CD: conditional; CP: Compulsory; EL: Elective.

7. Teaching Plan (expected)

7.1 Semester 1

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
1	Environmental Science Foundation	3	45	45		CP
2	General English 1	3	45	45		CP
3	Physical Education 1	1	30		30	CD
4	Marxist-Leninist philosophy	3	45	45		CP
5	Introduction to law	2	30	30		CP
6	General biology	2	30	30		CP
7	General Biology – Practice	1	30		30	CP
8	Advanced Math 1	3	45	45		CP
9	Basic Informatics	3	60	30	30	CP

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
	Total	21				

7.2 Semester 2

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
1	General Analytical chemistry	2	30	30		CP
2	General Analytical chemistry – Practice	1	30		30	CP
3	Natural resources and environment management	3	45	45		CP
4	Political Economy	2	30	30		CP
5	General English 2	3	45	45		CP
6	National Defence Education	8	165	75	90	CD
7	General society study	2	30	30		CP
8	Physical Education 2	1	30		30	CD
	Total	22				

7.3 Semester 3

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
1	Probability theory and mathematical statistics	3	45	45		CP
2	General Physics	2	30	30		CP
3	General Physics – Practice	1	30		30	CP
4	General logics	2	30	30		CP
5	Hydrometeorology	3	45	45		CP
6	Hydraulic	2	30	30		CP
7	Water quality	2	30	30		CP
8	General English 3	3	45	45		CP
9	Physical Education 3	1	30		30	CD
10	Science socialism	2	30	30		CP
	Total	21				

7.4 Semester 4

No.	Course name	Credits	Total	Periods	Type
-----	-------------	---------	-------	---------	------

			number of course periods	Lec.	Prac.	
1	Geodetic	2	30	30		CP
2	Geodetic-Practice	2	60		60	CP
3	Natural Resources and Environment Economics	2	30	30		CP
4	Environmental technology	2	30	30		CP
5	Geographic information systems and remote sensing	2	30	30		CP
6	Geographic Information Systems and Remote Sensing – Practice	1	30		30	CP
7	Applied Informatics Engineering 1 (AutoCAD 2D)	3	90	30	60	CP
8	Statistics of environmental experiments	3	60	30	30	CP
9	Ho Chi Minh Ideology	2	30	30		CP
10	<i>Population - health - environment</i>	Select 1 course	2	30	30	EL
11	<i>Climate Change</i>		2	30	30	EL
	Total	21				

7.5 Semester 5

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
1	Law on natural resources and environment	3	45	45		CP
2	Environmental monitoring and analysis	2	30	30		CP
3	Environmental monitoring and analysis - Practice	1	30		30	CP
4	Land resource management	2	30	30		CP
5	Forest resource management	2	30	30		CP
6	Forest resource management - Practice	1	30		30	CP
7	History of the Communist Party of Vietnam	2	30	30		CP
8	Urban and industrial environment management	2	30	30		CP
9	Urban and industrial environment management - Practice	1	30		30	CP
10	Occupational safety and environmental hygiene	3	45	45		CP
11	<i>Water supply and drainage</i>	Select	2	30	30	EL

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
12	<i>Calculating and forecasting water demand</i>	1 course	2	30	30	EL
Total			21			

7.6 Semester 6

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
1	Wastewater treatment technology	2	30	30		CP
2	Wastewater treatment technology - Project	1	30		30	CP
3	Environmental modeling	2	30	30		CP
4	Specialized English for Natural Resources Management	3	45	45		CP
5	Environmental planning	2	30	30		CP
6	Agricultural and rural environment management	2	30	30		CP
7	Agricultural and rural environment management - Practice	1	30		30	CP
8	Marine resources and environment management	2	30	30		CP
9	Marine resources and environment management - Practice	1	30		30	CP
10	Energy saving and management	2	30	30		CP
11	<i>Environmental Toxicology</i>	Select 1 course	2	30	30	EL
12	<i>Land pollution and degradation treatment</i>		2	30	30	EL
Total			20			

7.7 Semester 7

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
1	Management and reuse of organic waste	2	30	30		CP
2	Solid and hazardous waste management	2	30	30		CP
3	Solid and hazardous waste management - Practice	1	30		30	CP
4	Controlling air and noise pollution	2	30	30		CP

No.	Course name	Credits	Total number of course periods	Periods		Type
				Lec.	Prac.	
5	Environmental impact assessment	3	45	45		CP
6	Environmental impact assessment - Practice	1	30		30	CP
7	Statistics of environmental experiments	3	60	30	30	CP
8	<i>Environmental bioindicator</i>	Select 1 course	2	30	30	EL
9	<i>Environmental protection inspection</i>		2	30	30	EL
10	<i>Wetland Management</i>	Select 1 course	2	30	30	EL
11	<i>Environmental investment project management</i>		2	30	30	EL
12	<i>Natural resource and environmental communication</i>	Select 1 course	2	30	30	EL
13	<i>Disaster and risk management</i>		2	30	30	EL
Total		20				

7.8 Semester 8

No.	Course name	Credits	Total number of course periods	Periods		Type	
				Lec.	Prac.		
1	Resource and environment audit	3	45	45		CP	
2	Planning and managing water resources	2	30	30		CP	
3	Internship at the end of the course	4	120		120	CP	
7	Graduation Thesis	Select Graduation thesis or 2 alternative courses *	3	60	30	30	*
8	Community-based natural resources management		3	60	30	30	*
10	Assessment of soil, water and air quality		6	180		180	*
Tổng số tín chỉ tích lũy		15					

(*). If students do not meet the requirements to complete their graduation thesis, they will take alternative courses.

8. Instruction for program implementation

8.1 For Departments and Faculties

- The department of specialized management is responsible for reviewing, and leading the compilation of detailed outlines for subjects belonging to the basic knowledge blocks of the program in accordance with the credit load of this program. They provide a list of textbooks, lectures, and reference materials for all subjects to the University Library and keep them in

the Faculty's Office. At the beginning of each semester, they coordinate with other units in the University to implement the training plan according to the schedule.

- Assign lecturers with a Master's degree or above (in the same or related fields) to teach theoretical subjects, and provide detailed outlines of subjects for lecturers to ensure adherence to the University's teaching plan.

- The study advisor team must thoroughly understand the entire credit-based training program to guide students in registering for subjects.

8.2 For Lecturers

- When assigned to teach one or more subjects, lecturers must study the detailed outline of the subject's content thoroughly to prepare suitable lectures, teaching aids, and tools.

- Lecturers must fully prepare lectures, and course materials, and provide them to students to prepare before class.

- Organize seminars, focus on organizing group learning, and guide students in writing essays, and projects, determine teaching methods, present in class, guide discussions, solve problems in class, in practice rooms, in labs and guide students in writing reports.

- Pay attention to developing students' ability to learn and research independently throughout the teaching process and guide them in internships and practice.

- Pay attention to the logic of imparting and absorbing knowledge blocks, stipulate prerequisite subjects for mandatory subjects, and prepare lecturers to meet the teaching requirements of elective subjects.

8.3 For Students

- Students must consult their study advisor for advice in selecting subjects that are appropriate to the schedule. They must study the lesson before class to better understand the lecture. They must ensure that they have enough time to attend lectures and listen to the lecturer's guidance. Students must be self-motivated in self-learning and research, while actively participating in group learning and attending all seminars.

- Students should proactively and actively exploit the resources available online and in the university library to serve their self-learning and research.

- Regularly participating in extracurricular activities, and cultural and artistic events to improve communication skills and understanding of society and people.

8.4 Facilities and equipment for teaching, practice, and internship

- A system of lecture rooms with traditional equipment, additionally equipped with teaching aids (projector).

- Computer labs with software installed for basic computer training.

- Physics labs equipped with visual aids for basic physics courses.

- Equipment such as electronic total stations, and leveling instruments used for practical surveying courses.

Rector

**Department
of Academic Affairs**

**Faculty of Architecture,
Construction, and
Environment**

Dr. Nguyen Van Quang

Ly Men Ten (MSc)

Dr. Nguyen Thi My Linh

