

MINISTRY OF EDUCATION AND TRAINING
QUY NHON UNIVERSITY

UNDERGRADUATE PROGRAM

Level: **Undergraduate**

Major: **Natural Science Education**

Code: **7140247**

Mode of study: **Full-time**

MINISTRY OF EDUCATION AND TRAINING
QUY NHON UNIVERSITY

SOCIALIST REPUBLIC OF VIET NAM
Independence - Freedom - Happiness

UNDERGRADUATE PROGRAM

*(Issued in conjunction with Decision No.: 2178/QĐ-ĐHQN dated August 01, 2025
 by the Rector of Quy Nhon University)*

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1. PROGRAM OBJECTIVES (POs)

1.1. General Objectives

To train graduates in Natural Science Education with strong political qualities, ethics, and good health; possessing solid knowledge of fundamental sciences and educational sciences; equipped with skills to apply professional knowledge in solving problems in education, teaching Natural Science, and conducting scientific research. Graduates are expected to have lifelong learning capacity, adaptability to changing educational environments, digital competence in teaching, research, and professional development, meeting the requirements of digital transformation in education. They should demonstrate professional responsibility and community service awareness, fulfilling teacher professional standards and contributing to socio-economic development, national defense, security, and international integration.

1.2. Specific objectives

- PO1: Possess professional knowledge, skills, and practical competencies as Natural Science teachers.
- PO2: Demonstrate critical thinking, proactive collaboration, and problem-solving in educational contexts at school, local, national, and regional levels.
- PO3: Exhibit teaching competence, creativity, digital literacy, and lifelong self-learning and research capacity.
- PO4: Uphold ethics, professional responsibility, and community service awareness.

2. JOBOPPORTUNITIES AND PROFESSIONAL DEVELOPMENTS

- JobOpportunities:

- + Teacher of Natural Science at secondary schools and international schools.
- + Teaching assistant or lecturer at universities and colleges.

+ Education specialist at Departments of Education and Training, curriculum development centers.

+ Research staff at educational research institutes.

+ Editor or author of textbooks and reference books for publishers.

+ Instructor and curriculum developer in Natural Science and STEM education at training centers and educational organizations.

- Further Study: Continue postgraduate studies (Master's, Doctorate) domestically or abroad.

3. LEARNING OUTCOMES

The program is designed to ensure that upon graduation, students attain the following learning outcomes:

PLO1: Apply general education, foundational, and disciplinary knowledge in professional work	PI 1.1. Identify General Knowledge, foundational disciplinary knowledge, and sectoral knowledge to perform professional tasks
	PI 1.2. Apply General Knowledge, foundational disciplinary knowledge, and sectoral knowledge to perform professional tasks
PLO 2: Apply basic Natural Science knowledge to solve professional problems	PI 2.1. Identify basic knowledge of Natural Science
	PI 2.2. Apply basic knowledge of Natural Science to solve professional problems
PLO 3: Analyze advanced Natural Science knowledge to approach new knowledge and solve practical problems	PI 3.1. Analyze advanced Natural Science knowledge to access new knowledge
	PI 3.2. Analyze advanced Natural Science knowledge to solve practical problems
PLO 4: Conduct and propose improvements in Natural Science experiments	PI 4.1. Conduct Natural Science experiments to illustrate knowledge in the general education curriculum
	PI 4.2. Propose practical scientific solutions related to improving laboratory and experimental procedures
PLO 5: Organize and apply pedagogical communication skills in teaching and educational	PI 5.1. Organize teaching and educational activities oriented toward developing students' qualities and competencies

activities oriented toward student competence and character development	PI 5.2. Apply pedagogical communication skills in teaching and educational activities oriented toward developing students' qualities and competencies
	PI 5.3. Evaluate teaching and educational activities oriented toward developing students' qualities and competencies
PLO 6: Conduct scientific research in professional practice	PI 6.1. Develop scientific research plans in professional practice
	PI 6.2. Implement scientific research in professional practice
PLO 7: Use foreign languages, digital tools, and technologies in professional activities	PI 7.1. Use foreign languages in professional and specialized activities
	PI 7.2. Use digital tools and technologies in professional and specialized activities
PLO8: Demonstrate autonomy, self-learning, self-research, personal responsibility, and effective collaboration in academic and professional environments	PI 8.1. Demonstrate autonomy, self-learning, self-research, and personal responsibility to proactively access knowledge, develop independent thinking, and build effective learning methods
	PI 8.2. Demonstrate collaboration to enhance learning quality, promote holistic student development, and build an educational environment reflecting the school's cultural identity
PLO9: Exhibit ethics, professional responsibility, and community service to contribute to holistic human development	PI 9.1. Identify ethical issues, professional responsibilities of teachers, and community service awareness
	PI 9.2. Demonstrate ethics, professional responsibility, and community service to shape students' character, build a positive learning environment, and contribute to holistic human development

4. PROGRAM DURATION AND TOTAL ACADEMIC WORKLOAD

4.1. Program Duration: 04 years

4.2. Total Academic Workload: 138 credits (excluding 03 credits of Physical Education and 09 credits of National Defense and Security Education)

Program structure	Credits
General Knowledge	24
Professional Knowledge	114
- Fundamental knowledge	24
- Specialized Knowledge	53
- Supplementary Knowledge	31
- Bachelor thesis, Alternative courses	6
Total	138

5. ADMISSION REQUIREMENTS

Applicants who wish to apply for admission to the Natural Science Education program must meet the following requirements:

- Have graduated from upper secondary school (high school) or an equivalent qualification.
- Satisfy the requirements specified in Article 6 (Eligibility for applicants) of the Regulations on Admissions to full-time undergraduate programs and full-time college programs in teacher education issued by the Ministry of Education and Training under Circular No. 05/2017/TT-BGDĐT dated January 25, 2017 of the Minister of Education and Training.

6. MODE OF STUDY AND GRADUATION REQUIREMENTS

6.1. Mode of study: Credit-based system

6.2. Graduation Requirements: To be eligible for graduation, students must satisfy the following requirements:

- *Academic Requirements:* Students must complete all required courses and accumulate the total number of credits prescribed in the curriculum. In addition, they must obtain a minimum cumulative grade point average (CGPA) of 2.00 on a 4.0 scale.
- *Physical Education and National Defense and Security Education:* Students must fulfill requirements for Physical Education and obtain the Certificate of National Defense and Security Education in accordance with current regulations.
- *Foreign Language Requirement:* Students must meet the foreign language proficiency standard as prescribed by the University in accordance with the current

regulations of the training institution.

- *Information Technology Requirement:* Students must meet the basic information technology competency standards as stipulated in Circular No. 07/2015/TT-BGDĐT, as well as other specific regulations of the training institution.

- *Conduct and Ethical Requirements:* At the time of graduation consideration, students must not be subject to criminal prosecution and must not be under disciplinary action at the level of suspension from study.

7. TEACHING METHODS AND LEARNING ASSESSMENT

7.1. Teaching methods

No	Teaching Strategies	Teaching methods
1	Direct Instruction: Direct instruction is a teaching process in which the instructor directly delivers information and fundamental knowledge to learners. In this approach, the teacher plays a central role in controlling, guiding, and organizing instructional activities. Through presentation, explanation, and detailed guidance, the teacher helps learners access, acquire, and clearly understand the lesson content. This teaching strategy is effective for providing systematic knowledge and introducing new skills, thereby establishing a solid foundation for learners to apply such knowledge to professional practice and develop practical competencies.	- Lecture/Presentation - Explanation and Illustration - Question–Answer Interaction - Problem-posing - Simulation - Demonstration
2	Indirect Instruction: Indirect instruction is a teaching strategy in which learners are provided with opportunities to explore and construct knowledge through learning activities without relying entirely on the lecturer's direct transmission of information. In this strategy, the lecturer acts as a facilitator who organizes, guides, and supports the learning process rather than delivering all the instructional content directly. Learners are encouraged to actively engage in the learning process, apply critical thinking skills, and develop their ability to analyze	- Case-based learning - Problem-based learning - Guiding questions - Online teaching - Assignments - Discussion - Debate - Project-based learning

	and solve problems. Through various learning activities, this strategy helps learners enhance their capacity for self-directed learning and independent inquiry, while also fostering a stronger sense of responsibility and autonomy in their learning.	
3	Experiential Learning: Experiential learning consists of four stages: concrete experience, in which learners participate in practical activities such as group discussions, experimental practice, or field trips; reflective observation, during which learners reflect on and analyze the results, behaviors, and emotions arising from their experiences; abstract conceptualization, in which learners formulate concepts or theoretical insights based on their reflections; and active experimentation, where learners apply the acquired knowledge to new situations in order to test and refine their understanding. This approach not only facilitates the development of knowledge and skills but also enhances learners' attitudes and engagement in the learning process.	- Experiential learning - Internship - Fieldwork - Simulation - Practice - Discussion - Project-based learning
4	Interactive Teaching: Interactive teaching is a teaching strategy in which learners not only receive knowledge from the instructor but also interact with their peers, the instructor, and the learning content. In this approach, the instructor organizes and facilitates the learning process, while students actively participate in discussions, dialogue, and collaborative activities to construct knowledge. This process involves two-way interaction, continuous feedback, and adaptation, thereby fostering the development of communication, collaboration, critical thinking, and problem-solving skills, as well as enhancing learners' confidence and active engagement in learning.	- Interactive lectures - Group work - Discussions - Debates - Practice - Internships - Fieldwork - Project-based learning
5	Blended Learning (Face-to-Face and Online Instruction): A form of instruction in which part of the learning content is delivered through face-to-face classes and the remaining part is conducted through an online environment using LMS, videos, discussion forums, and online assignments.	- Face-to-face theoretical instruction - Online practice and discussion (via LMS)
6	Self-directed Learning: Self-directed learning is a learning strategy in which learners guide and regulate their own learning process with little or no direct supervision	- Online learning - Homework assignments Self-directed learning

	from the instructor. Learners actively seek knowledge, plan their learning activities, and carry out learning tasks through assignments, projects, or problems suggested by the instructor. This strategy helps develop learners' capacity for independent learning and research, as well as their autonomy and sense of responsibility in the learning process.	
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7.2. Learning Assessment

The assessment of learning complies with the current undergraduate training regulations of Quy Nhon University.

7.2.1. Grading scale

Grading scale	The 10-point grading scale is used to assess each course, including component scores, the final examination score, and the overall course grade. The course grade is calculated as the weighted sum of the component scores. A letter grading scale is used to classify academic performance based on the overall course grade.
	The 4-point grading scale is used to calculate the semester grade point average (GPA) and the cumulative grade point average (CGPA) in order to evaluate students' academic performance after each semester and determine their overall academic results.

Grading System Table

Classification	10-point scale	Letter grade	4-point Scale
Pass	From 9.0 to 10	A+	4.0
	From 8.0 to 8.9	A	3.5
	From 7.0 to 7.9	B+	3.0
	From 6.0 to 6.9	B	2.5
	From 5.0 to 5.9	C	2.0
	From 4.0 to 4.9	D	1.5
Fail	From 0 to 3.9	F	0

7.2.2. Assessment Methods, Evaluation Criteria, and Weighting

a) *Theoretical Courses*: Students are assessed through tests, assignments, discussions, and the final course examination. The course grade is calculated in

accordance with the current regulations of Quy Nhon University.

No	Assessment Method	Evaluation Criteria	Weighting
1	Formative Assessment	- Activeness and level of participation: the degree of initiative, preparation, and active participation in classroom activities. - Class attendance: attendance in required sessions; depending on the number of absences, the instructor determines the corresponding score based on the absence rate. - Homework assignments: accuracy and completeness of the submitted work. - In-class assignments: accuracy of the work and the ability to express personal viewpoints. - Presentations: level of preparation, knowledge content, and presentation skills. - Written tests: correctness of the answers, evaluated based on the answer key or marking scheme. - Discussions and group activities: level of preparation, knowledge content, communication skills, active engagement, and the ability to express personal viewpoints.	40%
2	Summative Assessment	- Written examination: accuracy of answers, evaluated based on the answer key or marking scheme. - Presentation: level of preparation, quality of content, and communication/presentation skills. - Oral examination: accuracy of responses in relation to the required knowledge, effective communication skills, and the ability to express personal viewpoints.	60%

b) Practical Courses: Students are required to attend all practical sessions according to the teaching schedule. The grade for a practical course is calculated as the average of

all practical assignments completed during the semester and is rounded to one decimal place.

c) Teaching Practicum Courses:

Students are required to attend all observation and teaching practicum sessions in accordance with the practicum plan. The practicum content includes: studying the educational context in practice; observation and teaching practice; and observation and practice of educational activities. The assessment criteria are specified in detail in the Teaching Practicum Regulations issued by Quy Nhon University.

d) Bachelor thesis Course: Students are assessed based on several criteria, including the format of the thesis report, the quality of the report content, and the quality of the thesis defense. The assessment components are defined according to specific criteria in the evaluation rubric. The Bachelor thesis is evaluated by the Bachelor thesis Assessment Committee established by the Rector of Quy Nhon University.

7.2.3. Assessments Methods

Assessments Methods	
Observation Method	This method is used to assess students' attendance and learning attitudes, including their learning awareness, independence, and creativity. It involves monitoring class attendance, preparation for lessons, participation in discussions, and contributions to classroom activities.
Assignment Assessment	This method evaluates the extent to which students complete the assignments given by the instructor related to the lesson during and after class. These assignments may be completed individually or in groups and are graded based on criteria that have been communicated to students in advance.
Presentation Assessment	Students are required to work individually or in groups and present their results to other students. This activity not only assesses the extent to which students achieve the required subject-specific knowledge but also evaluates the development of skills such as communication, negotiation, and teamwork.
Written Assessment Methods	Written assessment methods include essay-type tests and objective tests in the form of multiple-choice questions, or a combination of both.

Practical Assessment	Students are assessed based on criteria such as the accuracy of procedures and operations performed, the outcomes achieved, and the quality of the practical report.
Oral Assessment	Students are assessed through interviews and direct question-and-answer sessions. This method is used in certain courses to evaluate students' overall competence, including their knowledge as well as communication and presentation skills.

Group Work Assessment	his method is used in group-based learning activities to evaluate students' teamwork skills.
Term Paper / Major Assignment Assessment	Students are assessed through writing a report on a topic related to a course or a practical issue in order to draw conclusions, provide insights, and propose solutions for implementation or improvement of the identified problem. The assessment of the term paper includes evaluation of the structure, content, conclusions, and the format of presentation.
Learning Project Product Assessment	Through the products developed by students, the instructor evaluates the level of development, creativity, and effectiveness of the completed product. The criteria and standards used to assess the product may vary. Product assessment is conducted based on the specific context of real-world situations.

Assessment Methods – PLOs Alignment Matrix

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8. PROGRAM CONTENT

No	Course codes	Course Name	Semester	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
I. General Knowledge				24									
I.1. Political Science and Law				13									
01	1130299	Marxist–Leninist Philosophy	1	3	40		10			95		DPSLM	
02	1130049	Introduction to Law	1	2	27		6			62		DPSLM	
03	1130300	Marxist–Leninist Political Economy	2	2	27		6			62	1130299	DPSLM	
04	1130301	Science Socialism	3	2	27		6			62	1130300	DPSLM	
05	1130302	History of the Communist Party of Vietnam	4	2	27		6			62	1130301	DPSLM	
06	1130091	Ho Chi Minh Thought	5	2	27		6			62	1130302	DPSLM	
I.2. Physical Education and National Defense–Security Education				12									
Physical Education: Choose 1 of the following 8 courses:				3									
07	1120172	Physical Education 1 (Football 1)	1	1	4			26		21		DPE	
08	1120173	Physical Education 2 (Football 2)	2	1	4			26		21	1120172	DPE	
09	1120174	Physical Education 3 (Football 3)	3	1	4			26		21	1120173	DPE	
10	1120175	Physical Education 1 (Volleyball 1)	1	1	4			26		21		DPE	
11	1120176	Physical Education 2 (Volleyball 2)	2	1	4			26		21	1120175	DPE	
12	1120177	Physical Education 3 (Volleyball 3)	3	1	4			26		21	1120176	DPE	
13	1120178	Physical Education 1 (Basketball 1)	1	1	4			26		21		DPE	
14	1120179	Physical Education 2 (Basketball 2)	2	1	4			26		21	1120178	DPE	

No	Course codes	Course Name	Semester	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
15	1120180	Physical Education 3 (Basketball 3)	3	1	4			26		21	1120179	DPE	
16	1120181	Physical Education 1 (Badminton 1)	1	1	4			26		21		DPE	
17	1120182	Physical Education 2 (Badminton 2)	2	1	4			26		21	1120181	DPE	
18	1120183	Physical Education 3 (Badminton 3)	3	1	4			26		21	1120182	DPE	
19	1120184	Physical Education 1 (Vietnamese Traditional Martial Arts 1)	1	1	4			26		21		DPE	
20	1120185	Physical Education 2 (Vietnamese Traditional Martial Arts 2)	2	1	4			26		21	1120184	DPE	
21	1120186	Physical Education 3 (Vietnamese Traditional Martial Arts 3)	3	1	4			26		21	1120185	DPE	
22	1120187	Physical Education 1 (Taekwondo 1)	1	1	4			26		21		DPE	
23	1120188	Physical Education 2 (Taekwondo 2)	2	1	4			26		21	1120187	DPE	
24	1120189	Physical Education 3 (Taekwondo 3)	3	1	4			26		21	1120188	DPE	
25	1120190	Physical Education 1 (Karate-do 1)	1	1	4			26		21		DPE	
26	1120191	Physical Education 2 (Karate-do 2)	2	1	4			26		21	1120190	DPE	
27	1120192	Physical Education 3 (Karate-do 3)	3	1	4			26		21	1120191	DPE	
28	1120239	Physical Education 1 (Pickle ball 1)	1	1	4			26		21		DPE	
29	1120240	Physical Education 2 (Pickle ball 2)	2	1	4			26		21	1120239	DPE	
30	1120241	Physical Education 3 (Pickle ball 3)	3	1	4			26		21	1120240	DPE	

No	Course codes	Course Name	Sem ester	Num ber of cred its	In-class hours			Exp erim ent, Prac tice	Other s	Self - stu dy hou rs	Prerequ isite Course Code	Departmen t in charge	N o t e
					The ory	Assi gnm ent	Disc ussi on						
National Defense and Security Education				9									
31	1120168	National Defense and Security Education1	5	3	37		8			82		CNDSE	
32	1120169	National Defense and Security Education 2	5	2	22		8			52		CNDSE	
33	1120170	National Defense and Security Education3	5	2	14			16		44		CNDSE	
34	1120171	National Defense and Security Education4	5	2	4			56		36		CNDSE	
I.3. Foreign Language				7									
35	1090061	English 1	1	3	30	15				100		DFL	
36	1090166	English 2	2	4	40	20				135	1090061	DFL	
I.4. Social Sciences/Mathematics; Natural Sciences–Environment; Management Sciences				4									
37	2010156	Pedagogical Communication	4	2	20			20		55	2030410	DE	
38	2010171	Experiential and Career-Oriented Activities in Schools	5	2	20			20		55	1100026	DE	
II. Professional Education Knowledge				114									
II.1. Fundamental knowledge				24									
39	1050242	ICT Fundamentals for Education	1	3	30			30		85		DIT	
40	1100086	Psychology	2	3	30	10	10			95	1130299	DSSH	
41	2030410	Education Studies	3	4	36	20	0	8		131	1100086	DSSH	
42	2010103	Advanced Mathematics 1	1	2	20	10				65		DE	
43	2010104	Introduction to Natural Sciences	1	2	20	50	10			60		DE	
44	2010157	Advanced Mathematics 2	2	2	20	10				65	2010103	DE	

No	Course codes	Course Name	Semester	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
45	2010150	Probability and Statistics	3	2	20	10				65	2010157	DE	
46	2020489	General Chemistry	1	3	30	12	6			97		DNS	
47	2020507	General Chemistry Laboratory	2	1				30		15	2020489	DNS	
48	2020496	Earth Science	2	2	25	5				65	2010104	DNS	
II.2. Specialized Knowledge (if any)				53									
II.2.1. Major Knowledge				53									
II.2.1a. Compulsory Courses				47									
49	2010105	Cells and Living Systems	2	3	40		10			95		DNS	
50	2010106	Plant Biology	3	2	28		4			63	2010105	DNS	
51	2020500	Animal Biology	3	2	28		4			63	2010105	DNS	
52	2020510	Biology Laboratory 1	3	1				30		15	2010105	DNS	
53	2020836	Human and Health	3	3	40		10			95	2010105	DNS	
54	2020472	Fundamentals of Physics 1	3	3	30	12	6			97	2010157	DNS	
55	2020502	Evolution and Environmental Ecology	4	2	28		4			63	2010106 2020500	DNS	
56	2020477	Genetics	4	3	40		10			95	2010105	DNS	
57	2020511	Biology Laboratory 2	4	1				30		15	2010106 2020500	DNS	
58	2020493	Inorganic Chemistry 1	4	2	20	10				65	2020489	DNS	
59	2020490	Organic Chemistry 1	4	2	24	6				65	2020489	DNS	
60	2020473	Fundamentals of Physics 2	4	3	30	12	6			97	2020472	DNS	
61	2020504	Physics Laboratory 1	4	1				30		15	2020472	DNS	

No	Course codes	Course Name	Semester	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
62	2020512	Biology Laboratory 3	5	1				30		15	2020502 2020477	DNS	
63	2020494	Inorganic Chemistry 2	5	2	20	10				65	2020493	DNS	
64	2020491	Organic Chemistry 2	5	2	24	6				65	2020490	DNS	
65	2020474	Fundamentals of Physics 3	5	2	20	8	4			63	2020473	DNS	
66	2020503	Astronomy	5	2	22	4	8			61	2020473	DNS	
67	2020475	Oscillations and Waves	5	2	16	10	8			61	2020473	DNS	
68	2020505	Physics Laboratory 2	5	1				30		15	2020473	DNS	
69	2020509	Inorganic Chemistry Laboratory	6	1				30		15	2020494	DNS	
70	2020508	Organic Chemistry Laboratory	6	1				30		15	2020491	DNS	
71	2020492	Chemistry and Life	6	2	24	0	12			59	2020494 2020491	DNS	
72	2020837	Energy and Life	6	2	19	6	10			60	2020474	DNS	
73	2020506	Physics Laboratory 3	6	1				30		15	2020474	DNS	
<i>II.2.1b. Elective Courses</i>				6									
<i>Choose 01 of the following 03 courses:</i>				2									
74	2020513	Metabolism and Energy in Living Organisms	7	2	28		4			63	2010105	DNS	
75	2020838	Introduction to Biotechnology	7	2	28		4			63	2020477	DNS	
76	2020839	Sex Education and Reproductive Health	7	2	28		4			63	2020836	DNS	
<i>Choose 01 of the following 03 courses:</i>				2									
77	2020470	Modern Physicochemical Analytical Methods	7	2	20		2	18		55	2020494 2020491	DNS	
78	2020488	Chemistry of Natural Compounds	7	2	15	5		20		55	2020491	DNS	

No	Course codes	Course Name	Semester	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
79	2020840	Environmental Chemistry	7	2	28		4			63	2020494 2020491	DNS	
<i>Choose 01 of the following 03 courses:</i>				2									
80	2020841	Environmental Protection and Sustainable Development	7	2	20	6	8			61	2020474	DNS	
81	2020514	Modern Physics	7	2	20	8	4			68	2020474	DNS	
82	2020517	Cosmology	7	2	22	4	8			61	2020503	DNS	
II.3. Supplementary Knowledge				31									
II.3.1. Professional Training				24									
II.3.1a. Compulsory Courses				22									
83	2010127	Theories of Teaching Natural Sciences	5	2	20	5	10			60	1100026	DE	
84	2010116	Teaching the Theme of Living Organisms	6	2	20	5	10			60	2010127	DE	
85	2010114	Teaching the Theme of Matter and Its Transformations	6	2	20	5	10			60	2010127	DE	
86	2010115	Teaching the Theme of Energy and Its Transformations	6	2	20	5	10			60	2010127	DE	
87	2010129	Applied Educational Research in Natural Science Teaching	6	3	15	15	30			85	2010127	DE	
88	2010136	Teaching Skills Development 1	6	2				60		35	2010127	DE	
89	2010142	Experiments in Natural Science Teaching	7	3				90		55	2010116 2010114 2010115	DE	
90	2010138	Teaching Skills Development 2	7	2				60		35	2010136	DE	

[illegible]

[illegible]

No	Course codes	Course Name	Semester	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
					Theory	Assignment	Discussion						
99	2010124	Bachelor thesis	8	6					Bachelor thesis			DE	
Alternative Courses				6									
100	2010110	Exercises in Natural Sciences at Lower Secondary School	8	3	25	15	10			95	2010116 2010114 2010115	DE	
101	2020497	Selected Topics in Natural Sciences	8	3	39		12			84	2020511 2020494 2020491 2020474	DNS	
Total:				138									

9. TEACHING PLAN

Semester 1:

No	Course code	Course name	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	1130299	Marxist–Leninist Philosophy	3	40		10			95		DPSLM	

No	Course code	Course name	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
2	1130049	Introduction to Law	2	27		6			62		DPSLM	
3	1090061	English 1	3	30	15				100		DFL	
4	1050242	ICT Fundamentals for Education	3	30			30		85		DIT	
5	2010103	Advanced Mathematics 1	2	20	10				65		DE	
6	2010104	Introduction to Natural Sciences	2	20	5	10			60		DE	
7	2020489	General Chemistry	3	30	12	6			97		DNS	
Choose 1 of the following 8 courses:			1									
8	1120172	Physical Education 1 (Football 1)	1	4			26		21		DPE	
9	1120175	Physical Education 1 (Volleyball 1)	1	4			26		21		DPE	
10	1120178	Physical Education 1 (Basketball 1)	1	4			26		21		DPE	
11	1120181	Physical Education 1 (Badminton 1)	1	4			26		21		DPE	
12	1120184	Physical Education 1 (Vietnamese Traditional Martial Arts 1)	1	4			26		21		DPE	
13	1120187	Physical Education 1 (Taekwondo 1)	1	4			26		21		DPE	
14	1120190	Physical Education 1 (Karate-do 1)	1	4			26		21		DPE	
15	1120239	Physical Education 1 (Pickle ball 1)	1	4			26				DPE	
Total (excluding Physical Education courses):			18									

Semester 2:

No	Course code	Course name	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	1130300	Marxist–Leninist Political Economy	2	27		6			62	1130299	DPSLM	
2	1090166	English 2	4	40	20				135	1090061	DFL	
3	1100086	Psychology	3	30	10	10			95	1130299	DSSH	
4	2010157	Advanced Mathematics 2	2	20	10				65	2010103	DE	
5	2010105	Cells and Living Systems	3	40		10			95		DNS	
6	2020507	General Chemistry Laboratory	1				30		15	2020489	DNS	
7	2020496	Earth Science	2	25	5				65	2010104	DNS	
Choose 1 of the following 8 courses:			1									
8	1120173	Physical Education 2 (Football 2)	1	4			26		21	1120172	DPE	
9	1120176	Physical Education 2 (Volleyball 2)	1	4			26		21	1120175	DPE	
10	1120179	Physical Education 2 (Basketball 2)	1	4			26		21	1120178	DPE	
11	1120182	Physical Education 2 (Badminton 2)	1	4			26		21	1120181	DPE	
12	1120185	Physical Education 2 (Vietnamese Traditional Martial Arts 2)	1	4			26		21	1120184	DPE	
13	1120188	Physical Education 2 (Taekwondo 2)	1	4			26		21	1120187	DPE	
14	1120191	Physical Education 2 (Karate-do 2)	1	4			26		21	1120190	DPE	
15	1120240	Physical Education 2 (Pickle ball 2)	1	4			26		21	1120239	DPE	
Total (excluding Physical Education courses):			17									

Semester 3:

No	Course code	Course name	Num ber of credi ts	In-class hours			Expe rime nt, Pract ice	Othe rs	Self- study hours	Prerequisi te Course Code	Department in charge	Note
				Theo ry	Assi gnm ent	Disc ussio n						
1	1130301	Science Socialism	2	27		6			62	1130300	DPSLM	
2	2030410	Education Studies	4	36	20	0	8		131	1100086	DSSH	
3	2010150	Probability and Statistics	2	20	10				65	2010157	DE	
4	2010106	Plant Biology	2	28		4			63	2010105	DNS	
5	2020500	Animal Biology	2	28		4			63	2010105	DNS	
6	2020510	Biology Laboratory 1	1				30		15	2010105	DNS	
7	2020836	Human and Health	3	40		10			95	2010105	DNS	
8	2020472	Fundamentals of Physics 1	3	30	12	6			97	2010157	DNS	
Choose 1 of the following 8 courses:			1									
9	1120174	Physical Education 3 (Football 3)	1	4			26		21	1120173	DPE	
10	1120177	Physical Education 3 (Volleyball 3)	1	4			26		21	1120176	DPE	
11	1120180	Physical Education 3 (Basketball 3)	1	4			26		21	1120179	DPE	
12	1120183	Physical Education 3 (Badminton 3)	1	4			26		21	1120182	DPE	
13	1120186	Physical Education 3 (Vietnamese Traditional Martial Arts 3)	1	4			26		21	1120185	DPE	
14	1120189	Physical Education 3 (Taekwondo 3)	1	4			26		21	1120188	DPE	
15	1120192	Physical Education 3 (Karate-do 3)	1	4			26		21	1120191	DPE	
16	1120241	Physical Education 3 (Pickle ball 3)	1	4			26		21	1120240	DPE	
Total (excluding Physical Education courses):			19									

Semester 4:

No	Course code	Course name	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	1130302	History of the Communist Party of Vietnam	2	27		6			62	1130301	DPSLM	
2	2010156	Pedagogical Communication	2	20			20		55	2030410	DE	
3	2020502	Evolution and Environmental Ecology	2	28		4			63	2010106 2020500	DNS	
4	2020477	Genetics	3	40		10			95	2010105	DNS	
5	2020511	Biology Laboratory 2	1				30		15	2010106 2020500	DNS	
6	2020493	Inorganic Chemistry 1	2	20	10				65	2020489	DNS	
7	2020490	Organic Chemistry 1	2	24	6				65	2020489	DNS	
8	2020473	Fundamentals of Physics 2	3	30	12	6			97	2020472	DNS	
9	2020504	Physics Laboratory 1	1				30		15	2020472	DNS	
Total:			18									

Semester 5:

[illegible]

Semester 6:

No	Course code	Course name	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	2020509	Inorganic Chemistry Laboratory	1				30		15	2020494	DNS	

No	Course code	Course name	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
2	2020508	Organic Chemistry Laboratory	1				30		15	2020491	DNS	
3	2020492	Chemistry and Life	2	24	0	12			59	2020494 2020491	DNS	
4	2020837	Energy and Life	2	19	6	10			60	2020474	DNS	
5	2020506	Physics Laboratory 3	1				30		15	2020474	DNS	
6	2010116	Teaching the Theme of Living Organisms	2	20	5	10			60	2010127	DE	
7	2010114	Teaching the Theme of Matter and Its Transformations	2	20	5	10			60	2010127	DE	
8	2010115	Teaching the Theme of Energy and Its Transformations	2	20	5	10			60	2010127	DE	
9	2010129	Applied Educational Research in Natural Science Teaching	3	15	15	30			85	2010127	DE	
10	2010136	Teaching Skills Development 1	2				60		35	2010127	DE	
11	2010231	Professional Fieldwork	1					Practical Fieldwork			DE	
Total:			19									

Semester 7:

[illegible]

No	Course code	Course name	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
12	2020470	Modern Physicochemical Analytical Methods	2	20		2	18		55	2020494 2020491	DNS	
13	2020488	Chemistry of Natural Compounds	2	15	5		20		55	2020491	DNS	
14	2020840	Environmental Chemistry	2	28		4			63	2020494 2020491	DNS	
<i>Choose 01 of the following 03 courses:</i>												
15	2020841	Environmental Protection and Sustainable Development	2	20	6	8			61	2020474	DNS	
16	2020514	Modern Physics	2	20	8	4			68	2020474	DNS	
17	2020517	Cosmology	2	22	4	8			61	2020503	DNS	
Total:			18									

Semester 8:

No	Course code	Course name	Number of credits	In-class hours			Experiment, Practice	Others	Self-study hours	Prerequisite Course Code	Department in charge	Note
				Theory	Assignment	Discussion						
1	2010145	Teaching Practicum 2	5					TT		2010143	DE	
Bachelor thesis												
2	2010124	Bachelor thesis	6					Bachelor thesis			DE	
Alternative Courses												
3	2010110	Exercises in Natural Sciences at Lower Secondary School	3	25	15	10			95	2010116 2010114 2010115	DE	
4	2020497	Selected Topics in Natural Sciences	3	39		12			84	2020511 2020494 2020491 2020474	DNS	
Total:			11									

10. GUIDELINES FOR THE IMPLEMENTATION OF THE PROGRAM

- This training program is applied from the 2025 admission cohort for students majoring in Natural Science Education.

- The training process is based on the designed curriculum, training objectives, target learners, workforce requirements, and specific requirements for the program. For elective courses, depending on practical conditions, development trends, and social needs, the Department will advise students to select appropriate courses.

- The Dean of the Department is responsible for organizing and providing guidance on the principles for developing detailed course syllabi to ensure that the objectives, contents, and requirements of the program are met, while also satisfying the needs of learners and society.

- The program is regularly reviewed, evaluated, and updated. The results of the review and evaluation are used to improve and enhance the quality of the program. The cycle for comprehensive program evaluation is no more than five years.

Gia Lai, August 01, 2025

RECTOR

Assoc. Prof. Dr. Doan Duc Tung