

MINISTRY OF EDUCATION AND TRAINING
QUY NHON UNIVERSITY



UNDERGRADUATE PROGRAM

Level of education	:	Undergraduate
Major	:	Chemical Engineering Technology
Speciality	:	<i>1. Organic – Petrochemical Technology</i> <i>2. Environment Technology</i>
Code	:	7510401
Type of education	:	Full-time

Gia Lai, 2025

UNDERGRADUATE PROGRAM

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

Level of education: **Undergraduate**

Major: **Chemical Engineering Technology** Code: **7510401**

Speciality: **1. Organic – Petrochemical Engineering**
2. Environment Technology

Type of education: **Full-time**

1. PROGRAM OBJECTIVES (POs)

1.1. General objectives

Upon graduation, learners will become Chemical Engineering Technology engineers equipped with a solid foundation integrating theory and practice. They will be highly adaptable to practical production environments within their specialization, possessing strong ethical, political, and physical qualities. Furthermore, they will have a firm grasp of scientific research methods, demonstrate independent and creative thinking, and exhibit the capacity for independent learning and continuous professional development in the field of chemical engineering. They will also demonstrate the ability to work independently and collaboratively, maintain a strong sense of professional responsibility and community service, and successfully adapt, integrate, and advance to meet the rigorous demands of a highly skilled labor market.

1.2. Specific objectives (referred to as POs)

Upon graduation, learners will be able to:

+ PO1: Demonstrate foundational knowledge of natural and social sciences, political science, and law.

+ PO2: Apply specialized knowledge, professional skills, and practical competence in the field of Chemical Engineering Technology to meet the demands of an integrated environment.

+ PO3: Exhibit critical thinking, proactive collaboration, and problem-solving capabilities related to Chemical Engineering Technology; demonstrate an entrepreneurial and innovative mindset, digital literacy, and foreign language proficiency; and rapidly adapt to changes within a multidisciplinary working environment.

+ PO4: Demonstrate a commitment to independent learning, professional ethics, occupational responsibility, and a sense of community service.

2. EMPLOYMENT OPPORTUNITIES AND FURTHER STUDY PROSPECTS

Graduates of the Chemical Engineering Technology program can pursue the following career paths:

- Managing and operating process equipment systems; conducting product research and development (R&D); and performing Quality Assurance (QA) and Quality Control (QC) at factories and enterprises within the chemical, plastics, fertilizer, food, pharmaceutical, and oil and gas industries, etc.

- Working in laboratories at factories, production facilities, or environmental monitoring centers.

- Calculating, designing, supervising, constructing, and operating chemical process equipment and waste treatment facilities (solid, liquid, and gas).

- Founding and managing entrepreneurial ventures, as well as developing projects and businesses within the field of Chemical Engineering Technology.

- Working at research institutes (e.g., Institutes of Chemistry, Environment, Materials, Cosmetics, etc.) or state regulatory agencies (e.g., Departments of Agriculture, Environment, Science and Technology, Industry and Trade; Industrial Zone Management Boards; and local Divisions of Land Management, Agriculture, Construction, and Environment).

- Teaching and conducting research at universities, colleges, and research institutes. Additionally, graduates may pursue Master's and Doctoral degrees domestically and internationally.

3. LEARNING OUTCOMES

Program Learning Outcomes (PLOs) and Performance Indicators (PIs) used to assess the PLOs of the Chemical Engineering Technology Program

The program is designed to ensure that graduates of the Chemical Engineering Technology major achieve the following learning outcomes:

Program Learning Outcomes	Performance Indicators
PLO1: Demonstrate an understanding of the fundamental guidelines and policies of the Communist Party of Vietnam, as well as State laws; and explain knowledge of natural sciences to solve problems in professional activities and daily life.	PI 1.1: Demonstrate an understanding of foundational knowledge in social sciences, political science, law, and national defense and security within the context of professional activities and daily life.
	PI 1.2: Explain knowledge of natural sciences to solve problems in professional activities and daily life.
PLO2: Apply foundational knowledge of the discipline to build a basis for specialized knowledge in the field of Chemical Engineering Technology.	PI 2.1: Apply foundational knowledge of chemistry to explain the properties of matter, chemical transformations, and chemical applications related to Chemical Engineering Technology.
	PI 2.2: Apply foundational knowledge of electrical engineering, electronics, engineering mechanics, process equipments, sampling techniques, and measurement techniques to perform

	calculations, design, and select equipment and technologies within the field of Chemical Engineering Technology.
PLO3: Apply specialized knowledge to evaluate product quality; and to calculate, design, operate, and supervise technological and waste treatment processes.	PI 3.1: Apply specialized knowledge in chemistry, food, pharmaceuticals, chemicals, petroleum, and petrochemicals, etc., to support the Organic and Petrochemical Technology specialization.
	PI 3.2: Apply specialized environmental knowledge to support the Environmental Technology specialization.
PLO4: Apply digital competencies in learning and professional work, adapting to technological advancement trends and an integrated environment.	PI 4.1: Utilize artificial intelligence (AI) tools; efficiently collect, store, process, and analyze digital data; while ensuring information safety and security in a digital environment.
	PI 4.2: Apply digital tools to support design, work supervision, planning, and task management, meeting the demands of digital transformation in fields related to Chemical Engineering Technology.
PLO5: Apply laboratory, practical, internship, and industrial practicum skills, and analyze data and information to solve problems bridging theory and practice in the fields of science, technology, and environment.	PI 5.1: Apply laboratory and practical skills in combination with the operation and utilization of modern tools in specialized areas related to science, technology, and environment.
	PI 5.2: Apply acquired knowledge and skills in practical settings through industrial internships at factories and production facilities related to Organic and Petrochemical Technology, and Environmental Technology.
	PI 5.3: Analyze data and information to solve problems bridging theory and practice in the fields of science, technology, and environment.
PLO6: Apply supplementary knowledge and professional skills in occupational activities.	PI 6.1: Apply skills including communication, teamwork, and entrepreneurship to advance professional careers in an interdisciplinary and globalized context.

	PI 6.2: Apply supplementary knowledge of foreign languages and information technology to advance within the field of Chemical Engineering Technology.
PLO7: Demonstrate professional conduct and professional ethics of a Chemical Engineering Technology engineer; exhibit professional responsibility and a commitment to lifelong learning and research to enhance professional competence.	PI 7.1: Demonstrate professional conduct and professional ethics; exhibit discipline and adherence to the law; and demonstrate the roles and responsibilities of a Chemical Engineering Technology engineer within enterprises and society.
	PI 7.2: Demonstrate the ability to engage in independent learning and autonomous work; exhibit teamwork capabilities and a commitment to continuous professional development.

4. PROGRAM DURATION AND TOTAL CREDITS

4.1. Program duration: 4.5 years

4.2. Total credits: 150 credits (excluding 3 credits of Physical Education and 9 credits of National Defense and Security Education)

No.	Program structure	Credits
1	General Knowledge	24
1.1	Political Science and Law	13
1.2	Foreign Language	7
1.3	Social Sciences	4
2	Professional Knowledge	126
2.1	Fundamental Knowledge	35
2.2	Specialized Knowledge	50
2.3	Supplementary Knowledge	33
2.4	Graduation thesis	8
Total		150

5. ADMISSION REQUIREMENTS

According to the current admission regulations of the Ministry of Education and Training and Quy Nhon University.

6. TRAINING METHOD, GRADUATION REQUIREMENTS

6.1. Training Method: Credit-based system

6.2. Graduation Requirements: (professional knowledge, prerequisite courses, foreign language, and information technology standards)

- Accumulate the required number of courses and credits of the training program;

- Achieve the program learning outcomes (PLOs) of the training program;
- Achieve a Cumulative Grade Point Average (CGPA) of 2.00 or higher for the entire program;
- Complete Physical Education courses and obtain a National Defense and Security Education certificate;
- Meet the foreign language and Information Technology proficiency standards as prescribed by the University.

7. TEACHING METHODS AND LEARNING ASSESSMENT

7.1 Teaching Methods

Depending on the teaching strategies of the courses, corresponding teaching methods will be applied.

✚ Direct instruction: Most theoretical courses are taught using methods such as presentations, lecturing, Q&A sessions, guided questioning, and assigning homework to students, while assessing students' independent learning capacity through assignments and discussions. The corresponding teaching methods are as follows:

- + Lecturing
- + Guided questioning
- + Discussion

✚ Indirect instruction: Some courses employ indirect instruction without explicit intervention from lecturers, such as course projects and graduation projects. The corresponding teaching methods are as follows:

- + Open-ended questioning
- + Idea generation
- + Case studies
- + Problem-solving

✚ Experiential learning: Various courses in the program are designed for experiential learning. These include practical and laboratory courses at the University's laboratory facilities; technical internships and industrial practicums at factories; graduation internships at companies, factories, and enterprises; as well as course projects and graduation projects. The corresponding teaching methods are as follows:

- + Modeling
- + Internships and practicums
- + Laboratory experiments
- + Design

✚ Interactive instruction: Implemented in several courses of the program. Students engage in group assignments, group presentations, laboratory experiments, group practical sessions, graduation internships, industry site visits, and graduation projects. The corresponding teaching methods are as follows:

- + Discussion
- + Problem-solving
- + Group study
- + Interaction & Feedback

✚ Independent learning: Experimental and design activities within course projects and graduation projects; presenting course projects and graduation projects; completing homework, major assignments, and take-home essays; writing laboratory reports; presenting experiments; and self-study. The corresponding teaching methods are as follows:

- + Individual assignments
- + Research topics and projects
- + Computer-assisted instruction

7.2 Learning Assessment

*** Grading scale:**

A 10-point scale is used for all assessment components within the courses.

*** Format, evaluation criteria, and scoring system:**

a. Theoretical courses

No	Format	Evaluation criteria	Weight
1	<i>Progress Assessment</i>	Initiative, level of active preparation, and participation in class activities.	40%
		Class attendance is governed by individual lecturers' regulations, and the lecturer determines the score based on the absence rate.	
		Depending on the specific characteristics of the course, the lecturer may require students to complete one or a combination of the following activities: <ul style="list-style-type: none"> - Take an individual test. The evaluation criteria for the test will be clearly specified by the lecturer. - Complete group reports, seminars, major assignments, or practical assignments (if the course includes both theory and practice), as prescribed by the instructor. The evaluation criteria for reports, seminars, major assignments, etc., will be clearly specified by the lecturer. 	
2	<i>Final exam</i>	Final examination; Exam format: Written/Oral/etc.; Evaluation criteria: According to the answer key provided by the lecturer who set the exam.	60%

b. Laboratory – practical courses

Students must fully attend all laboratory and practical sessions. The arithmetic mean of the practical scores throughout the semester, rounded to one decimal place, constitutes the final grade for the practical course.

c. Course project: 50% continuous assessment; 50% project presentation.

d. Internships and field trips: 50% continuous assessment; 50% report presentation.

Graduation internship: 50% continuous assessment; 50% report presentation.

e. Graduation project: Conducted in accordance with the Undergraduate Academic

Regulations promulgated under Decision No. 1487/QĐ-ĐHQN dated July 1, 2021, by Quy Nhon University.

*** Assessment Methods**

The assessment methods employed in the Chemical Engineering Technology program are classified into two main categories: Formative Assessment and Summative Assessment.

Detailed descriptions of these assessment methods are provided in the table below:

Mapping of Assessment Methods and Program Learning Outcomes (PLOs)

Assessment Methods	Program Learning Outcomes (PLOs)						
	1	2	3	4	5	6	7
<i>I. Formative Assessment</i>							
1. Attendance assessment	X	X		X		X	X
2. Assignment assessment	X	X	X	X	X	X	X
3. Presentation assessment	X	X	X		X	X	X
<i>II. Summative Assessment</i>							
4. Written examination	X	X			X	X	X
5. Multiple-choice examination	X	X	X			X	X
6. Defense and oral examination	X	X	X	X	X	X	X
7. Report	X	X	X	X	X	X	X
8. Presentation assessment	X	X	X	X	X	X	X
9. Group work assessment	X	X	X	X	X	X	X

No	Course Code	Course Name	Semester	Number of credits	Theory	Practice	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
<i>1 out of 8 following groups)</i>													
11	1120172	<i>Physical Education 1 (Football 1)</i>	1	1	4	0	0	26	0	21		Physical Education & National Defense	
12	1120173	<i>Physical Education 2 (Football 2)</i>	2	1	4	0	0	26	0	21	1120172	Physical Education & National Defense	
13	1120174	<i>Physical Education 3 (Football 3)</i>	3	1	4	0	0	26	0	21	1120173	Physical Education & National Defense	
14	1120175	<i>Physical Education 1 (Volleyball 1)</i>	1	1	4	0	0	26	0	21		Physical Education & National Defense	
15	1120176	<i>Physical Education 2 (Volleyball 2)</i>	2	1	4	0	0	26	0	21	1120175	Physical Education & National Defense	
16	1120177	<i>Physical Education 3 (Volleyball 3)</i>	3	1	4	0	0	26	0	21	1120176	Physical Education & National Defense	
17	1120178	<i>Physical Education 1 (Basketball 1)</i>	1	1	4	0	0	26	0	21		Physical Education & National Defense	
18	1120179	<i>Physical Education 2 (Basketball 2)</i>	2	1	4	0	0	26	0	21	1120178	Physical Education & National Defense	
19	1120180	<i>Physical Education 3 (Basketball 3)</i>	3	1	4	0	0	26	0	21	1120179	Physical Education & National Defense	
20	1120181	<i>Physical Education 1 (Badminton 1)</i>	1	1	4	0	0	26	0	21		Physical Education & National Defense	
21	1120182	<i>Physical Education 2 (Badminton 2)</i>	2	1	4	0	0	26	0	21	1120181	Physical Education & National Defense	
22	1120183	<i>Physical Education 3 (Badminton 3)</i>	3	1	4	0	0	26	0	21	1120182	Physical Education & National Defense	
23	1120184	<i>Physical Education 1 (Vietnamese Traditional Matial Arts)</i>	1	1	4	0	0	26	0	21		Physical Education & National	

No	Course Code	Course Name	Semester	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
Sciences - Environment, Management Sciences													
37	2030003	Communication Skills	2	2	20	5	0	10	0	55		Social Sciences & Humanities	C
38	1150422	Start Up	5	2	20	5	10	0	0	55	1130049	Finance-Banking & Biz Admin	C
II. Professional Knowledge				126									
II.1. Fundamental Knowledge				35									
39	2020007	General Physics	1	2	20	6	8	0	0	56		Natural Sciences	C
40	1010349	Calculus	1	3	31	14	0	0	0	90		Math & Stats	C
41	1050241	Basic Information	1	3	30	0	0	30	0	90		Information Technology	C
42	1030312	General Chemistry	2	3	24	15	12	0	0	84		Natural Sciences	C
43	1010350	Statistics – Numerical Methods	2	3	30	15	0	0	0	90		Math & Stats	C
44	2020787	Applied inorganic chemistry	3	3	26	4	0	30	0	75	1030312	Natural Sciences	C
45	2020788	Applied physical chemistry	3	3	35	8	4	0	0	88	1030312	Natural Sciences	C
46	1160838	Electronics Engineering	3	2	18	6	0	12	0	54	2020007	Engineering & Technology	C
47	1160596	Electrical Techniques	4	2	16	4	0	20	0	50	2020007	Engineering & Technology	C
48	2020789	Applied Organic chemistry	4	3	30	0	0	30	0	73	1030312 1030314	Natural Sciences	C
49	2020790	Applied Analytical Chemistry	4	3	23	5	4	30	0	73		Natural Sciences	C
50	1160839	Mechanical Engineering	4	2	20	10	0	0	0	60		Engineering & Technology	C
51	2020791	Modern analytical methods	5	3	30	0	0	30	0	73	2020790	Natural Sciences	C
II.2. Specialized knowledge				50									
II.2.1. Industry knowledge				11									
52	2020792	Mechanical and Hydraulic Processes and Equipment	3	3	30	12	6	0	0	85		Natural Sciences	C
53	2020793	Heat Transfer Processes and Equipment	4	2	22	6	4	0	BTL	56	2020792	Natural Sciences	C

No	Course Code	Course Name	Semester	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
54	2020794	The Process and Equipment of Mass Transfer	5	3	36	6	6	0	BTL	86	2020792	Natural Sciences	C
55	1030325	Automation control and measurement engineering in chemical	6	3	36	6	6	0	0	87		Natural Sciences	C
II.2.2. Specialized Knowledge				39									
II.2.2.1. Organic - Petrochemical Technology Major				39									
<i>II.2.2.1a. Compulsory</i>				<i>31</i>									
56	2020795	Fuel Chemistry	6	2	26	0	8	0	0	56	2020789	Natural Sciences	Major 1 - Compulsory (M1-C)
57	2020796	Industrial Biochemistry	6	2	28	0	4	0	0	60	2020789	Natural Sciences	M1-C
58	1150423	Production management	6	2	23	5	4	0	0	58	1130002	Finance-Banking & Biz Admin	M1-C
59	2020797	Reaction Engineering and Equipment	6	3	30	12	6	0	0	85	2020794	Natural Sciences	M1-C
60	2020429	Management Product Quality and Production	7	2	24	4	4	0	0	58	1150423	Natural Sciences	M1-C
61	2020798	Petroleum Processing Technology	7	2	26	0	8	0	BTL	54	2020795	Natural Sciences	M1-C
62	1030333	Technology for Synthesis of Organic Compounds	7	3	30	10	10	0	BTL	85	2020789	Natural Sciences	M1-C
63	2020420	Petroleum addition and product	7	2	28	0	4	0	0	58	2020795	Natural Sciences	M1-C
64	1030366	Pipeline engineering and storage system	7	2	30	0	0	0	0	60		Natural Sciences	M1-C
65	2020442	Specialized Practice in Organic and Petrochemical Technology	7	2	0	0	0	60		30	1030314 2020795	Natural Sciences	M1-C
66	1030337	Gas Processing Technology	8	2	26	2	4	0	0	58	2020788	Natural Sciences	M1-C
67	2020430	Fundamental Of Chemical Plant Design	8	3	35	5	10	0	BTL	85		Natural Sciences	M1-C
68	2020799	Product Research And Development	8	2	28	0	4	0	BTL	58		Natural Sciences	M1-C
69	2020818	Organic- Petrochemical Engineering Project	8	1	0	0	0	0	ĐA	30	2020889 1030333	Natural Sciences	M1-C
<i>II.2.2.1b. Optional</i>				<i>8/18</i>									
70	2020817	Product Packaging Technology	8	2	24	4	4	0	0				Major 1 – Elective 2

No	Course Code	Course Name	Semester	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
													(M1-E2-2)
71	2020421	Plastic Manufacturing Technology	7	2	22	4	8	0	0	56	2020789	Natural Sciences	M1-E1-2
72	1030100	Environmental Engineering	7	2	22	4	8	0	0	56	2020788 2020790	Natural Sciences	M1-E1-2
73	2020422	Waste Management	7	2	24	0	12	0	0	54		Natural Sciences	M1-E1-2
74	2020431	Technology of Renewable Fuel Production	7	2	24	0	12	0	0	54	2020789	Natural Sciences	M1-E1-2
75	2020800	Simulation And Optimization Process	8	2	18	10	4	0	0	56	2020794 2020797	Natural Sciences	M1-E2-2
76	2020434	Cleaner Production	8	2	20	6	8	0	0	56		Natural Sciences	M1-E2-2
77	2020433	Waste Treatment Engineering	8	2	24	6	0	0	0	60		Natural Sciences	M1-E2-2
II.2.2.2. Environmental Technology Major				39									
<i>II.2.2.2a. Compulsory</i>				<i>31</i>									
78	1030068	Environmental chemistry	6	2	22	4	8	0	0	56	2020787 2020789	Natural Sciences	M2-C
79	2020414	Environmental Ecology	6	2	26	0	8	0	0	56		Natural Sciences	M2-C
80	1030034	Environmental Toxicology	6	2	24	0	12	0	0	54		Natural Sciences	M2-C
81	2020424	Environmental Monitoring	6	2	26	4	0	0	0	60		Natural Sciences	M2-C
82	2020423	Environmental Protection Law And Policy	7	2	24	0	12	0	0	54	1030068	Natural Sciences	M2-C
83	1030025	Environmental Impact Assessment (EIA)	7	2	16	12	4	0	0	58		Natural Sciences	M2-C
84	1030358	Environmental Microbiology	7	2	26	0	8	0	0	56		Natural Sciences	M2-C
85	2020447	Solid Waste And Hazardous Waste Management	7	2	24	4	4	0	0	58	1030068	Natural Sciences	M2-C
86	1030101	Water Supply Treatment Engineering	7	2	24	6	0	0	0	60	1030068 2020794	Natural Sciences	M2-C
87	2020425	Wastewater Treatment Engineering	7	2	24	6	0	0	0	60	1030068 2020794	Natural Sciences	M2-C
88	2020435	Air And Noise Pollution Control Techniques	8	2	20	8	4	0	0	58	1030068 2020794	Natural Sciences	M2-C
89	2020443	Environmental Technology Practice	8	2	0	0	0	60		30	1030314	Natural Sciences	M2-C
90	2020801	Design Of Waste Treatment System	8	3	35	5	10	0		85	2020425 2020447	Natural Sciences	M2-C
91	2020802	Environmental Aspects of Industrial Production	8	2	20	8	4	0		58	1030068	Natural Sciences	C

No	Course Code	Course Name	Semester	Number of credits	Theory	Practice	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
92	2020819	Environmental Engineering Project	8	1	0	0	0	0	ĐA	0		Natural Sciences	M1-C
<i>II.2.2b. Optional</i>				8/16									
93	1030355	Combined Technologies For Wastewater Treatment	7	2	26	0	8	0	0	56	1030068	Natural Sciences	M2-E1-2
94	2020426	Health – Safety – Environment	7	2	26	4	0	0	0	60		Natural Sciences	M2-E1-2
95	2020427	Sustainable energy	7	2	26	0	8	0	0	56	2020789	Natural Sciences	M2-E1-2
96	2020428	Clean Fuel Production	7	2	24	0	12	0	0	54	2020789	Natural Sciences	M2-E1-2
97	1030354	ISO 14000 and Environmental Audits	8	2	30	0	0	0	0	60		Natural Sciences	M2-E2-2
98	2020437	Management And Operation Of Waste Treatment Systems	8	2	26	0	8	0	0	56		Natural Sciences	M2-E2-2
99	2020438	Construction Engineering	8	2	26	0	8	0	0	56	2020794	Natural Sciences	M2-E2-2
100	2020439	Clean Production Technology	8	2	20	6	8	0	0	56	2020794	Natural Sciences	M2-E2-2
II.3. Supplementary Knowledge				33									
101	2020406	Introduction to Engineering of Chemical technology	1	2	20	4	8	4	0	54		Natural Sciences	C
102	1030314	Laboratory Safety And Techniques	1	1	10	3	0	4	0	28		Natural Sciences	C
103	1020110	General Physics Laboratory	1	1	0	0	0	30	0	15		Natural Sciences	C
104	1030313	General Chemistry Practice	2	1	0	0	0	30	0	15	1030314	Natural Sciences	C
105	2020014	Technical Drawing – AutoCAD	3	3	28	8	0	18	0	81		Natural Sciences	C
106	2020803	Applied Physical Chemistry Practice	3	1	0	0	0	30	0	15		Natural Sciences	C
107	2020147	Time Management and Teamwork Skills	5	2	21	0	18	0	0	51		Natural Sciences	C
108	2020412	Statistics and Chemometrics	4	2	14	2	0	28	0	46		Natural Sciences	C
109	2020411	Techniques for sampling, handling and preserving of samples	5	2	24	4	4	0	0	58		Natural Sciences	C
110	2020804	Chemical and Food Technology Processes and Equipment Practice	5	1	0	0	0	30	0	15	1030314 2020793	Natural Sciences	C
111	1030327	English In Chemical Technology	5	2	26	0	8	0	0	56	1090166	Natural Sciences	C
112	2020415	Occupational Safety and Industrial Hygiene	6	2	28	0	4	0	0	58		Natural Sciences	C
113	2020805	Chemical Engineering Unit Operations Design	6	1	0	0	0	0	ĐA	0	2020794	Natural Sciences	C

No	Course Code	Course Name	Semester	Number of credits	Theory	Practice	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
114	2020806	Basic Engineering Internships At Plant	6	2	0	0	0		TT	0	2020794	Natural Sciences	C
115	2020807	Environmental Monitoring and Quality Analysis Laboratory	6	1	0	0	0	30	0	15	1030068 2020424	Natural Sciences	M2-C
116	2020808	Enterprise Connection Skills	7	2	28	0	4	0	0	58	2020147	Natural Sciences	M2-C
117	1030097	Environmental Economics	7	2	20	8	4	0	0	58		Natural Sciences	M2-C
118	2020809	Practice research and product development	8	1	0	0	0	30	0	15	2020799	Natural Sciences	M1-C
119	2020810	Construction and Management of Technology projects	8	2	26	0	8	0	0	BTL		Natural Sciences	M1-C
120	2020811	Chemical Engineering Internship At Plant	8	2	0	0	0	0	TT	0	2020806	Natural Sciences	C
121	2020441	Construction and Management of Environment Projects	8	2	22	4	8	0		56		Natural Sciences	M2-C
122	2020812	Environmental Engineering Internship At Plant	8	2	0	0	0	0	TT	0	2020806	Natural Sciences	C
123	2020813	Graduation Internship in Organic-Petrochemical Technology	9	4	0	0	0	360	TT	180	2020811	Natural Sciences	C
124	2020815	Graduation Internship in Environmental Technology	9	4	0	0	0	360	TT	180	2020812	Natural Sciences	C
II.4. Graduation Thesis				8									
II.4.1. Organic - Petrochemical Technology Major													
125	2020814	Graduation Thesis in Organic-Petrochemical Technology	9	8	0	0	0	0	ĐA	120		Natural Sciences	C
II.4.2. Environmental Technology Major													
126	2020816	Graduation Thesis in Environmental Technology	9	8	0	0	0	0	ĐA	120		Natural Sciences	C

9. TENTATIVE TEACHING PLAN

Semester 1

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
1	1130299	Philosophy of Marxism and Leninism	3	40	0	10	0	0	85		Political Theory - Law & State Management	Compulsory (C)
2	2020007	General Physics	2	20	10	0	0	0	56		Natural Sciences	C
3	1010349	Calculus	3	31	14	0	0	0	90		Math & Stats	C
4	1050241	Basic Information	3	24	6	0	30	0	75		Information Technology	C
5	1090061	English 1	3	30	15	0	0	0	90		Foreign language	C
6	2020406	Introduction to Engineering of Chemical technology	2	20	4	8	4	0	54		Natural Sciences	C
7	1030314	Laboratory Safety And Techniques	1	10	3	0	4	0	28		Natural Sciences	C
8	1020110	General Physics Laboratory	1	0	0	0	30	0	15		Natural Sciences	C

9	1120172	<i>Physical Education 1 (Football 1)</i>	1	4	0	0	26	0	21		Physical Education & National Defense	Requirement 1 (R1)
10	1120175	<i>Physical Education 1 (Volleyball 1)</i>	1	4	0	0	26	0	21		Physical Education & National Defense	R2
11	1120178	<i>Physical Education 1 (Basketball 1)</i>	1	4	0	0	26	0	21		Physical Education & National Defense	R3
12	1120181	<i>Physical Education 1 (Badminton 1)</i>	1	4	0	0	26	0	21		Physical Education & National Defense	R4
13	1120184	<i>Physical Education 1 (Vietnamese Traditional Matial Arts 1)</i>	1	4	0	0	26	0	21		Physical Education & National Defense	R5
14	1120187	<i>Physical Education 1 (Taekwondo Matial Arts 1)</i>	1	4	0	0	26	0	21		Physical Education & National Defense	R6
15	1120190	<i>Physical Education 1 (Karatedo Matial Arts 1)</i>	1	4	0	0	26	0	21		Physical Education & National Defense	R7
16	1120239	<i>Physical Education 1 (Pickleball 1)</i>	1	4	0	0	26	0	21		Physical Education &	R8

												National Defense	
		Total	18+										

Semester 2

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
1	1130300	Political economics of marxism and leninism	2	27	0	6	0	0	57	1130299	Political Theory - Law & State Management	C
2	1030312	General Chemistry	3	24	15	12	0	0	84		Natural Sciences	C
3	1010350	Statistics – Numerical Methods	3	30	15	0	0	0	90		Math & Stats	C
4	1090166	English 2	4	40	20	0	0	0	120	1090061	Foreign language	C
5	2030003	Communication Skills	2	18	0	20	4	0	48		Social Sciences & Humanities	C

6	1130049	Fundamentals of Law	2	27	0	6	0	0	57		Political Theory - Law & State Management	C
7	1030313	General Chemistry Practice	1	0	0	0	30	0	15	1030314	Natural Sciences	C
8	1120173	<i>Physical Education 2 (Football 2)</i>	1	4	0	0	26	0	21	1120172	Physical Education & National Defense	R1
9	1120176	<i>Physical Education 2 (Volleyball 2)</i>	1	4	0	0	26	0	21	1120175	Physical Education & National Defense	R2
10	1120179	<i>Physical Education 2 (Basketball 2)</i>	1	4	0	0	26	0	21	1120178	Physical Education & National Defense	R3
11	1120182	<i>Physical Education 2 (Badminton 2)</i>	1	4	0	0	26	0	21	1120181	Physical Education & National Defense	R4
12	1120185	<i>Physical Education 2 (Vietnamese Traditional Matial Arts 2)</i>	1	4	0	0	26	0	21	1120184	Physical Education & National Defense	R5
13	1120188	<i>Physical Education 2 (Taekwondo Matial Arts 2)</i>	1	4	0	0	26	0	21	1120187	Physical Education &	R6

											National Defense	
14	1120191	<i>Physical Education 2 (Karatedo Matial Arts 2)</i>	1	4	0	0	26	0	21	1120190	Physical Education & National Defense	R7
15	1120240	<i>Physical Education 2 (Pickleball 2)</i>	1	4	0	0	26	0	21	1120239	Physical Education & National Defense	R8
		Total	17+ 1									

Semester 3

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
1	1130301	Science socialism	2	27	0	6	0	0	57	1130300	Political Theory - Law & State Management	C
2	1160838	Electronics Engineering	2	18	6	0	12	0	54	2020007	Engineering & Technology	C
3	2020787	Applied inorganic chemistry	3	26	4	0	30	0	75	1030312	Natural Sciences	C

4	2020788	Applied physical chemistry	3	35	8	4	0	0	88	1030312	Natural Sciences	C
5	2020014	Technical Drawing – AutoCAD	3	28	8	0	18	0	81		Natural Sciences	C
6	2020792	Mechanical and Hydraulic Processes and Equipment	3	30	12	6	0	0	85		Natural Sciences	C
7	2020803	Applied Physical Chemistry Practice	1	0	0	0	30	0	15		Natural Sciences	C
8	1120174	<i>Physical Education 3 (Football 3)</i>	1	4	0	0	26	0	21	1120173	Physical Education & National Defense	R1
9	1120177	<i>Physical Education 3 (Volleyball 3)</i>	1	4	0	0	26	0	21	1120176	Physical Education & National Defense	R2
10	1120180	<i>Physical Education 3 (Basketball 3)</i>	1	4	0	0	26	0	21	1120179	Physical Education & National Defense	R3
11	1120183	<i>Physical Education 3 (Badminton 3)</i>	1	4	0	0	26	0	21	1120182	Physical Education & National Defense	R4
12	1120186	<i>Physical Education 3 (Vietnamese Traditional Matial Arts 3)</i>	1	4	0	0	26	0	21	1120185	Physical Education & National Defense	R5

13	1120189	<i>Physical Education 3 (Taekwondo Matial Arts 3)</i>	1	4	0	0	26	0	21	1120188	Physical Education & National Defense	R6
14	1120192	<i>Physical Education 3 (Karatedo Matial Arts 3)</i>	1	4	0	0	26	0	21	1120191	Physical Education & National Defense	R7
15	1120241	<i>Physical Education 3 (Pickleball 3)</i>	1	4	0	0	26	0	21	1120240	Physical Education & National Defense	R8
		Total	17+									

Semester 4

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
1	1130302	History of Vietnamese Communist Party	2	27	0	6	0	0	57	1130301	Political Theory - Law & State Management	C
2	1160596	Electrical Techniques	2	16	4	0	20	0	50	2020007	Engineering & Technology	C
3	2020147	Time Management and Teamwork Skills	2	21	0	18	0	0	51		Natural Sciences	C

4	2020793	Heat Transfer Processes and Equipment	2	22	6	4	0	BTL	56	2020792	Natural Sciences	C
5	2020789	Applied Organic chemistry	3	30	0	0	30	0	75	1030312 1030314	Natural Sciences	C
6	2020790	Applied Analytical Chemistry	3	23	5	4	30	0	73		Natural Sciences	C
7	2020412	Statistics and Chemometrics	2	14	2	0	28	0	46		Natural Sciences	C
8	1120168	<i>National Defense and Security Education 1</i>	3	37	0	16	0	0	82		Physical Education & National Defense	C
9	1120096	<i>National Defense and Security Education 2</i>	2	22	0	16	0	0	52		Physical Education & National Defense	C
10	1120170	<i>National Defense and Security Education 3</i>	2	14	0	0	32	0	44		Physical Education & National Defense	C
11	1120171	<i>National Defense and Security Education 4</i>	2	4	0	0	52	0	34		Physical Education & National Defense	C
		Total	16+ 9									

Semester 5

Semester 6

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
Organic - Petrochemical Technology Major												
1	2020415	Occupational Safety and Industrial Hygiene	2	28	0	4	0	0	58		Natural Sciences	C
2	1030325	Automation control and measurement engineering in chemical	3	36	6	6	0	0	87		Natural Sciences	C
3	2020805	Chemical Engineering Unit Operations Design	1	0	0	0	0	DA	0	2020794	Natural Sciences	C
4	2020806	Basic Engineering Internships At Plant	2	0	0	0		TT	0	2020794	Natural Sciences	C
5	2020795	Fuel Chemistry	2	26	0	8	0	0	56	2020789	Natural Sciences	MI-C
6	2020796	Industrial Biochemistry	2	28	4	0	0	0	60	2020789	Natural Sciences	MI-C
7	1150423	Production management	2	23	5	4	0	0	58	1130002	Finance-Banking & Biz Admin	MI-C

8	2020418	Reaction Engineering and Equipment	3	30	10	10	0	0	85	2020794	Natural Sciences	MI-C
		Total	17									

Semester 6

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
	Environmental Technology Major											
1	2020415	Occupational Safety and Industrial Hygiene	2	28	0	4	0	0	58		Natural Sciences	C
2	1030325	Automation control and measurement engineering in chemical	3	36	6	6	0	0	87		Natural Sciences	C
3	2020805	Chemical Engineering Unit Operations Design	1	0	0	0	0	DA	0	2020794	Natural Sciences	C
4	2020806	Basic Engineering Internships At Plant	2	0	0	0		TT	0	2020794	Natural Sciences	C
5	1030068	Environmental chemistry	2	22	4	8	0	0	56	2020787 2020789	Natural Sciences	M2-C
6	2020414	Environmental Ecology	2	26	0	8	0	0	56		Natural Sciences	M2-C
7	1030034	Environmental Toxicology	2	24	0	12	0	0	54		Natural Sciences	M2-C

8	2020424	Environmental Monitoring	2	26	4	0	0	0	60		Natural Sciences	M2-C
9	2020807	Environmental Monitoring and Quality Analysis Laboratory	1	0	0	0	30	0	0	1030068 2020424	Natural Sciences	M2-C
Total			17									

Semester 7

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
Organic - Petrochemical Technology Major												
1	2020429	Management Product Quality and Production	2	24	4	4	0	0	58	1150423	Natural Sciences	M1-C
2	2020798	Petroleum Processing Technology	2	24	0	12	0	BTL	54	2020795	Natural Sciences	M1-C
3	1030333	Technology for Synthesis of Organic Compounds	3	30	10	10	0	BTL	85	2020789	Natural Sciences	M1-C
4	2020420	Petroleum addition and product	2	28	0	4	0	0	58	2020795	Natural Sciences	M1-C
5	1030366	Pipeline engineering and storage system	2	24	6	0	0	0	60		Natural Sciences	M1-C
6	2020442	Specialized Practice in Organic and Petrochemical Technology	2	0	0	0	60		30	1030314 2020795	Natural Sciences	M1-C

7	2020808	Enterprise Connection Skills	2	28	0	4	0	0	58	2020147	Natural Sciences	c
8	2020817	Product Packaging Technology	2	24	4	4	0	0	58		Natural Sciences	M1-E1-2
9	2020421	Plastic Manufacturing Technology	2	22	4	8	0	0	56	2020789	Natural Sciences	M1-E1-2
10	1030100	Environmental Engineering	2	22	4	8	0	0	56	2020788 2020790	Natural Sciences	M1-E1-2
11	2020422	Waste Management	2	24	0	12	0	0	54		Natural Sciences	M1-E1-2
Total			19									

Semester 7

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
Environmental Technology Major												
1	2020423	Environmental Protection Law And Policy	2	24	0	12	0	0	54	1030068	Natural Sciences	M2-C
2	1030025	Environmental Impact Assessment (EIA)	2	16	12	4	0	0	58		Natural Sciences	M2-C
3	1030358	Environmental Microbiology	2	26	0	8	0	0	56		Natural Sciences	M2-C

4	2020447	Solid Waste And Hazardous Waste Management	2	24	4	4	0	0	58	1030068	Natural Sciences	M2-C
5	1030101	Water Supply Treatment Engineering	2	24	6	0	0	0	60	1030068 2020794	Natural Sciences	M2-C
6	2020425	Wastewater Treatment Engineering	2	24	6	0	0	0	60	1030068 2020794	Natural Sciences	M2-C
7	1030097	Environmental Economics	2	20	8	4	0	0	58		Natural Sciences	M2-C
8	1030355	Combined Technologies For Wastewater Treatment	2	26	0	8	0	0	56	1030068	Natural Sciences	M2-E1-2
9	2020426	Health – Safety – Environment	2	26	4	0	0	0	60		Natural Sciences	M2-E1-2
10	2020427	Sustainable energy	2	26	0	8	0	0	56	2020789	Natural Sciences	M2-E1-2
11	2020428	Clean Fuel Production	2	24	0	12	0	0	54	2020789	Natural Sciences	M2-E1-2
		Total	18									

Semester 8

No	Course code	Course name	Number of credits	Theory	Practise	Tests	Experimental/Practical	Others	Self-study time	Prerequisite Course Code	Managing Faculty	Note
Organic - Petrochemical Technology Major												
1	1030337	Gas Processing Technology	2	26	2	4	0	0	58	2020788	Natural Sciences	M1-C
2	2020430	Fundamental Of Chemical Plant Design	3	35	5	10	0	BTL	85		Natural Sciences	M1-C

3	2020799	Product Research And Development	2	28	0	4	0	BTL	58		Natural Sciences	M1-C
4	2020809	Practice research and product development	1	0	0	0	30	0	15	2020799	Natural Sciences	M1-C
5	2020810	Construction and Management of Technology projects	2	26	0	8	0	0	BTL		Natural Sciences	M1-C
6	2020818	Organic- Petrochemical Engineering Project	1	0	0	0	0	ĐA	30	2020789 1030333	Natural Sciences	M1-C
7	2020811	Chemical Engineering Internship At Plant	2	0	0	0		TT	0	2020806	Natural Sciences	C
8	2020431	Technology of Renewable Fuel Production	2	24	0	12	0	0	54	2020789	Natural Sciences	M1-E2-2
9	2020800	Simulation And Optimization Process	2	18	10	4	0	0	56	2020794 2020797	Natural Sciences	M1-E2-2
10	2020434	Cleaner Production	2	20	6	8	0	0	56		Natural Sciences	M1-E2-2
11	2020433	Waste Treatment Engineering	2	24	6	0	0	0	60		Natural Sciences	M1-E2-2
		Total	17									

Semester 8

No	Course code	Course name	Number of	Theory	Practise	Tests	Experimental/ Practical	Others	Self-study time	Prerequisite	Managing Faculty	Note
----	-------------	-------------	-----------	--------	----------	-------	----------------------------	--------	-----------------	--------------	------------------	------

10. GUIDELINES FOR PROGRAM IMPLEMENTATION

- This training program is applicable starting from the 2025 admission cohort for students majoring in Chemical Engineering Technology.

- The training process is based on the designed curriculum, training objectives, target audience, human resource requirements, and specific training demands. Regarding elective courses, depending on actual developmental trends and societal needs, the Faculty will advise students on selecting appropriate courses.

- The Dean of the Faculty is responsible for organizing and guiding the principles for developing detailed course syllabi to ensure that objectives, content, and requirements are met, while satisfying the needs of both learners and society.

- The training program is regularly reviewed to align with the development of the Chemical Engineering Technology field and socio-economic development needs.

Gia Lai, August 01, 2025

RECTOR

Assoc. Prof. Dr. Doan Duc Tung