

**BACHELOR TRAINING PROGRAMS IN CHEMICAL ENGINEERING
TECHNOLOGY**

*(Issued in accordance with Decision No: /QĐ-ĐHNCT date month year 2022 of The
Principal of Nam Can Tho University)*

Name of Program : **Chemical Technology Training Program**
Degree Training : **Full-time University**
Major : **Chemical Engineering Technology**
Code : **7510401**
Type of Training : **Full-time**

1. Describing the training program

1.1 Introduction to Food Technology

The training program of Chemical Engineering Technology trains the Bachelor of Chemical Engineering Technology who is full of knowledge, skills, political qualities, morality, professional behavior, and good health to be able to work effectively in the fields related to Chemical Engineering Technology.

1.2 General information about the training program

Name of Program (Vietnamese)	Công nghệ kỹ thuật hóa học
Name of Program (English)	Chemical engineering and technology
Major Code	7510401
Degree University	Nam Can Tho University
Diploma Title	Bachelor of Chemical Engineering Technology
Training Level	Undergraduate
Required number of credits	133
Training Form	Full-time
Training Time	4 years
Enrollment Object	High School Graduates
Assessment Scale	4
Graduation Requirement	<ul style="list-style-type: none">- Accumulating enough modules and volume of the training program to reach 133 credits;- The cumulative GPA of the whole course is 5.0 or higher;- Achieving the output standards of English and computer skills according to the general regulations of the University;- Achieving output standards Soft skills and Occupational skills;- Having a certificate of National Defense - Security Education and completing the required modules
Career Position	<ul style="list-style-type: none">- Operators and testers in food manufacturing factories;

	<ul style="list-style-type: none"> - Staff managing the food quality assurance system; - Employees working in departments, departments, businesses, and organizations related to Chemical Engineering Technology.
Learning to advance level	It is possible to continue studying for a master's degree at home country and abroad.
Reference Program	Undergraduate training programs in Food Technology, Can Tho University, Can Tho University of Technology and Engineering, University of Food Industry in Ho Chi Minh City. Ho Chi Minh City, Nha Trang University, and the University of Nottingham UK.
Update Time	July 2022

1.3 Training Target

1.3.1 General Target

- Training human resources with a bachelor's degree who are enough health, solid knowledge, and professional capacity to satisfy the social requirements and needs of learners that are suitable for the process of industrialization as well as modernization of the country.
- Having ethical qualities, the ability to self-study, and self-research in order to achieve output standards in terms of knowledge, skills, and capacity for autonomy and responsibility.
- Training qualified human resources to work at agencies, factories, and companies related to the field of food technology.

1.3.2 Specific Target

M1: Understanding and applying the foundational and in-depth knowledge of the field of food technology in professional work.

M2: Forming professional ideas in Chemical Engineering Technology and developing the management capacity and operate an individual and collective scale.

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

M4: Organizing and performing professional operations of Chemical Engineering Technology, 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, thereby changing and improving their lives, and social life.

2. Training Time: 4 years

3. The volume of knowledge of the whole course: 133 credits (excluding Physical Education and National Defense Education modules), are assigned:

General Education Knowledge	Compulsory/ Required Knowledge	Elective Knowledge	Total
Specialized Educational Knowledge	42	5	47
- Basic knowledge	70	16	86
- Specialized Knowledge	35	6	41
- Graduation internship	31	4	35

- Graduation thesis/Alternative subjects	4		4
Total		6	6
General Education Knowledge	112	21	133

4. Enrollment Object

Admission is based on the results of the national high school graduation exam or the high school transcript scores according to the combination of subjects by industry and nationwide admission.

5. Training process, graduation requirements

5.1 Training procedure

Implement the regulations on Full-time university and college training according to the credit system and current training regulations of Can Tho University.

5.2 Graduated Requirement

- Students who complete the training program will be considered for graduation and recognized for graduation according to Article 27 of the training regulations under the credit system.
- Achieving the level of English and Information Technology according to the general regulations of the University (for Informatics, from modules 01 to 06 of the standard of skills in using information technology according to Circular 03/2014/TT-BTTTT)
- Obtaining the Certificate of National Defense Education; Physical education; Soft Skills and Occupational Skills.
- Evaluation of division points and course points shall comply with Articles 22 and 23 of the training regulations according to the credit system.
- Ranking of an academic year, and ranking of graduation is done according to Articles 14 and 28 of the training regulations according to the credit system.

6. THE CONTENT OF THE TRAINING PROGRAM

6.1 The content of General Education

Number	Module Code	Name of Module	Number of credits	Theory	Practice	Type
A	Political Theory		11			
1	0101000889	Philosophy	3	3		Compulsive
2	0101000641	Political Economy	2	2		Compulsive
3	0101000890	Scientific Socialism	2	2		Compulsive
4	0101000900	Ho Chi Minh's Ideology	2	2		Compulsive
5	0101000869	History of the Communist Party of Vietnam	2	2		Compulsive
B	Humanities and Social Sciences		2+2			
6	0101000891	General Law	2	2		Compulsive
7	0101000881	General Logics	2	2		Elective
8	0101001141	Environment and	2	2		Elective

		Human				
9	0101000903	General Sociology	2	2		Elective
C	Foreign language		11			
10	0101000861	Basic English 1	3	3		Compulsive
11	0101000862	Basic English 2	3	3		Compulsive
12	0101000863	Basic English 3	3	3		Compulsive
13	0101001881	English in Chemical Engineering Technology	2	2		Compulsive
D	Math, Informatics, Natural Science		18+3			
14	0101000256	General Chemistry	3	3		Compulsive
15	0101000892	General Biology	2	2		Compulsive
16	0101000957	General Biology- Practice	1		1	Compulsive
17	0101000898	Advanced Math 1	3	3		Compulsive
18	0101000902	General Physics	2	2		Compulsive
19	0101000960	General Physics - Practice	1		1	Compulsive
20	0101000896	Basic Informatics	3	2	1	Compulsive
21	0101000883	Mathematical statistics probability theory	3	3		Compulsive
22	0101001882	Calculation Method	3	2	1	Elective
23	0101001883	Experimental Plan	3	3		Elective
E	Physical Education		3			
24	0101000872	Physical Education 1 (*)	1		1	Required
25	0101000873	Physical Education 2 (*)	1		1	Required
26	0101000874	Physical Education 3 (*)	1		1	Required
F	National Defence Education		8			
27	0101000871	National Defence Education (*)	8			Required

(*) Cumulative GPA is not calculated for the Conditional Module

6.2 The volume of professional education knowledge

Number	Module Code	Name of Module	Number of credits	Theory	Practice	Type
Industry Background Knowledge Section			35+6			

Number	Module Code	Name of Module	Number of credits	Theory	Practice	Type
1	0101000269	Analytical Chemistry	2	2		Compulsive
2	0101000270	Analytical Chemistry - Practice	1		1	Compulsive
3	0101000077	Descriptive Geometry and Technical drawing	3	3		Compulsive
4	0101000099	Electrical Engineering	2	2		Compulsive
5	0101001884	Automatic Control Theory	2	2		Compulsive
6	0101001884	Inorganic Chemistry	2	2		Compulsive
7	0101001885	Inorganic Chemistry- Practice	1		1	Compulsive
8	0101001886	Organic Chemistry	2	2		Compulsive
9	0101001887	Organic Chemistry- Practice	1		1	Compulsive
10	0101001888	Physical Chemistry 1	2	2		Compulsive
11	0101001889	Physical Chemistry 1- Practice	1		1	Compulsive
12	0101001890	Physical Chemistry 2	2	2		Compulsive
13	0101001891	Physical Chemistry 2 - Practice	1		1	Compulsive
14	0101001892	Analytical Chemistry 2	2	2		Compulsive
15	0101001893	Analytical Chemistry 2 - Practice	1		1	Compulsive
16	0101001894	Labor Safety in Chemical	1	1		Compulsive

Number	Module Code	Name of Module	Number of credits	Theory	Practice	Type
		Engineering Technology				
17	0101001895	Reaction Engineering - Equipment	3	3		Compulsive
18	0101001896	Thermal transfer processing and equipment	2	2		Compulsive
19	0101001897	Process and equipment for transferring substances	2	2		Compulsive
20	0101001898	The project of Processing and Equipment	1		1	Compulsive
21	0101001899	Awareness Practice	1			Compulsive
22	0101001900	Material Science	2	2		Elective
23	0101001901	Measurement techniques	2	2		Elective
24	0101001902	Design Base for Chemical Factory	2	2		Elective
25	0101001903	Polymer Physical Chemical	2	2		Elective
26	0101001904	Atomic Spectrum	2	2		Elective
27	0101001905	Variable Ultraviolet Spectrum	2	2		Elective
Specialized Knowledge Section			31+4			
28	0101001906	Food Biochemistry and Microbiology	2	2		Compulsive
29	0101001907	Organic synthesis technology	3	3		Compulsive
30	0101001908	Detergent manufacturing technology	3	3		Compulsive
31	0101001909	Detergent manufacturing technology -	1		1	Compulsive

Number	Module Code	Name of Module	Number of credits	Theory	Practice	Type
		Practice				
32	0101001910	Technology for machining plastic products	3	3		Compulsive
33	0101001911	Technology for machining plastic products - Practice	1		1	Compulsive
34	0101001912	Petroleum chemistry and oil refining technology	3	3		Compulsive
35	0101001913	Pharmaceutical Chemistry	2	2		Compulsive
36	0101001914	Pharmaceutical Chemistry - Practice	1		1	Compulsive
37	0101001915	Food physicochemical analysis	3	3		Compulsive
38	0101001916	Food physicochemical analysis - Practice	1		1	Compulsive
39	0101001917	Worker internship	2		2	Compulsive
40	0101001918	Environmental analysis	3	3		Compulsive
41	0101001919	Environmental analysis - Practice	1		1	Compulsive
42	0101001920	Scientific Research Methodology	2	2		Compulsive
43	0101001921	Cosmetic Flavoring	2	2		Elective
44	0101001922	Gas processing technology	2	2		Elective
45	0101001923	Technology for production of cellulose and paper	2	2		Elective
46	0101001924	Sensory Analysis	2	2		Elective

Number	Module Code	Name of Module	Number of credits	Theory	Practice	Type
47	0101001925	Microbiological analysis	2	2		Elective
Graduation Internship			4			
48	0101001926	Graduation Internship	4		4	Compulsive
Graduation thesis/Alternative modules			6			
49	0101001927	Graduation thesis	6		6	Elective
50	0101001928	Paint production techniques	2	2		Elective
51	0101001929	Dyeing technique	2	2		Elective
52	0101001930	Chromatography technique	2	2		Elective

7. TEACHING PLAN (EXPECTED)

7.1 The first semester

Number	Name of Module	Number of credits	Total number of credits	Number of credits		Type
				Theory	Practice	
1	Basic English 1	3	45	45		Compulsive
2	National Defence Education	8	165	75	90	Required
3	Physical Education 1	1	30		30	Required
4	General Chemistry	3	45	45		Compulsive
5	Philosophy	3	45	45		Compulsive
6	General Laws	2	30	30		Compulsive
7	Advanced Math 1	3	45	45		Compulsive
8	General Physics	2	30	30		
9	General Physics – Practice	1	30		30	
10	Basic Informatics	3	60	30	30	Compulsive
	Total accumulated Credits	20				Compulsive

7.2 The second semester

Number	Name of Module	Number of credits	Total number of credits	Number of credits		Type
				Theory	Practice	
1	Organic Chemistry	2	30	30		Compulsive
2	Organic Chemistry-Practice	1	30		30	Compulsive

3	Political Economy	2	30	30		Compulsive
4	Basic English 2	3	45	45		Compulsive
5	Physical Education 2	1	30		30	Required
6	Mathematical statistics probability theory	3	45	45		Compulsive
7	General Biology	2	30	30		Compulsive
8	General Biology- Practice	1	30		30	Compulsive
9	Inorganic Chemistry	2	30	30		Compulsive
10	Inorganic Chemistry- Practice	1	30		30	Compulsive
11	General Sociology	Choosing 1 module	2	30	30	Elective
12	Environment and Human		2	30	30	Elective
Total accumulated Credits		19				

7.3 The third semester

Number	Name of Module	Number of credits	Total number of credits	Number of credits		Type
				Theory	Practice	
1	Descriptive Geometry and Technical drawing	3	45	45		Compulsive
2	Scientific Socialism	2	30	30		Compulsive
3	General Logics	2	30	30		Compulsive
4	Analytical Chemistry	2	30	30		Compulsive
5	Analytical Chemistry - Practice	1	30		30	Compulsive
6	Basic English 3	3	45	45		Compulsive
7	Physical Education 3	1	30		30	Required
8	Ho Chi Minh's Ideology	2	30	30		Compulsive
9	Physical Chemistry 1	2	30	30		Compulsive
10	Physical Chemistry 1-Practice	1	30		30	Compulsive
Total accumulated Credits		18				

7.4 The fourth semester

Number	Name of Module	Number of	Total number	Number of credits	Type
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		credits	of credits	Theory	Practice		
1	Electrical Engineering	2	30	30		Compulsive	
2	Analytical Chemistry 2	2	30	30		Compulsive	
3	Analytical Chemistry 2 - Practice	1	30		30	Compulsive	
4	Labor Safety in Chemical Engineering Technology	1	15	15		Compulsive	
5	Physical Chemistry 2	2	30	30		Compulsive	
6	Physical Chemistry 2 - Practice	1	30		30	Compulsive	
7	History of the Communist Party of Vietnam	2	30	30		Compulsive	
8	Thermal transfer processing and equipment	2	30	30		Compulsive	
9	Calculation Method	Choosing 1 module	3	30	30	30	Elective
10	Experimental Plan		3	45	45		Elective
	Total accumulated Credits	16					

7.5 The fifth Semester

Number	Name of Module	Number of credits	Total number of credits	Number of credits		Type
				Theory	Practice	
1	English in Chemical Engineering Technology	2	30	30		Compulsive
2	Process and equipment for transferring substances	2	30	30		Compulsive
3	Automatic Control Theory	2	30	30		Compulsive
4	Reaction Engineering - Equipment	3	45	45		Compulsive
5	Awareness Practice	1	30		30	Compulsive
6	Atomic Spectrum	Choosing 1 module	2	30	30	Elective

7	Variable Ultraviolet Spectrum		2	30	30		Elective
8	Design Base for Chemical Factory	Choosing 1 module	2	30	30		Elective
9	Polymer Physical Chemical		2	30	30		Elective
Total accumulated Credits			14				

7.6 The sixth semester

Number	Name of Module		Number of credits	Total number of credits	Number of credits		Type
					Theory	Practice	
1	The project of Processing and Equipment		1	30		30	Compulsive
2	Food Biochemistry and Microbiology		2	30	30		Compulsive
3	Detergent manufacturing technology		3	45	45		Compulsive
4	Detergent manufacturing technology - Practice		1	30		30	Compulsive
5	Organic synthesis technology		3	45	45		Compulsive
6	Scientific Research Methodology		2	30	30		Compulsive
7	Petroleum chemistry and oil refining technology		3	45	45		Compulsive
8	Material Science	Choosing 1 module	2	30	30		Elective
9	Measurement techniques		2	30	30		Elective
Total accumulated Credits			17				

7.7 The seventh semester

Number	Name of Module	Number of credits	Total number of credits	Number of credits		Type
				Theory	Practice	
1	Technology for machining plastic products	3	45	45		Compulsive
2	Technology for machining plastic products - Practice	1	30		30	Compulsive
3	Pharmaceutical Chemistry	2	30	30		Compulsive
4	Pharmaceutical Chemistry - Practice	1	30		30	Compulsive
5	Worker internship	2	60		60	Compulsive
6	Cosmetic Flavoring	Choosing 1 module	2	30	30	Elective
7	Gas processing technology		2	30	30	Elective
8	Technology for production of cellulose and paper		2	30	30	Elective
9	Sensory Analysis	Choosing 1 module	2	30	30	Elective
10	Microbiological analysis		2	30	30	Elective
Total accumulated Credits		13				

7.8 The eighth semester

Number	Name of Module	Number of credits	Total number of credits	Number of credits		Type
				Theory	Practice	
1	Food physicochemical analysis	3	45	45		Compulsive
2	Food physicochemical analysis - Practice	1	30		30	Compulsive
3	Environmental analysis	3	45	45		Compulsive
4	Environmental analysis - Practice	1	30		30	Compulsive
	Graduation Internship (Chemical Engineering Technology)	4	120		120	
7	Paint production techniques	Choosing Graduation	2	30	30	

8	Dyeing technique	thesis (Chemical Engineering Technology) or Studying 3 Alternative modules	2	30	30		
9	Chromatography technique		2	30	30		
10	Graduation thesis (Chemical Engineering Technology)		6	180		180	
Total accumulated Credits			18				

(*) If the student is not eligible to undertake the graduation thesis, alternative modules will be taken

8. INSTRUCTIONS FOR IMPLEMENTATION OF THE TRAINING PROGRAM

8.1 For Faculty and Department

- The Faculty of Professional Management is responsible for reviewing and presiding over the compilation of detailed outlines of the modules in the basic and specialized knowledge according to the number of credits of this program. Providing the list of textbooks, lectures, and reference materials of all modules to the University Library and keeping it in the Faculty Office. At the beginning of each semester, faculty coordinate with units of the University to implement the training plan on schedule.
- Assigning lecturers with a master's degree or higher (in the same discipline or related major) to teach theoretical modules, providing detailed outlines for lecturers to ensure that they follow the general teaching plan of the University.
- The academic advisor must thoroughly understand the entire credit-based training program to guide students to register for modules.

8.2 For lecturers

- When a lecturer is assigned to teach one or more modules, it is necessary to carefully study the content of the detailed module outline in order to prepare the lecture and appropriate teaching aids and materials.
- Lecturers must fully prepare lectures, textbooks, and materials and provide them to students to prepare before going to class.
- Organizing seminars, focusing on organizing group study, and guiding students to make essays, and projects. Lecturers identify methods of transmission; class presentations, guiding discussions, solving problems in class, in the practice room, and in the laboratory as well as guiding students to write essays.
- Paying attention to developing students' self-study and self-research ability during the module of teaching and guiding practice and practice.
- It is necessary to pay attention to the logic of imparting and absorbing knowledge, specifying prerequisite modules of compulsory modules, and preparing lecturers to meet the requirements of teaching elective modules.

8.3. For students

- Students must consult/refer to the academic advisor to select the module to suit their progress. Students must study the lesson themselves before going to class in order to easily absorb the lecture. Students must have enough time in class to listen to the lecture instructions. Students must be self-disciplined in self-study and self-research, and actively participate in a group study, fully attend seminar sessions.

- Actively exploiting online resources and the university's library to serve self-study, self-research, and graduation projects. Strictly complying with regulations on examination, examination, and evaluation.
- Regularly participate in mass and cultural activities to practice communication skills; and understanding of society and people.

8.4 Facilities and equipment for teaching and practice, internship

- System of theoretical classrooms with traditional equipment is equipped with additional teaching aids (projectors).
- Computer practice rooms are installed with software for basic informatics training.
- Practical room for basic modules of general physics, general chemistry, organic chemistry, and analytical chemistry with equipment for visual training.
- The practice rooms specialized in food technology are equipped with suitable machines, equipment, and tools.

Rector
(signed)

Academic Affairs
Department

Faculty

Dr. NGUYEN VAN QUANG