MINISTRY OF INDUSTRY AND TRADE
HO CHI MINH CITY UNIVERSITY OF INDUSTRY AND TRADE

ACADEMIC PROGRAM
FOOD TECHNOLOGY

Program Name (Vietnamese): **CÔNG NGHỆ THỰC PHẨM**

Program Name (English): Food Technology

Level of Education: Doctoral Degree

Major Code: 9540101

Mode of Study: Full-time

Administering Faculty: Food Technology

TP. HỒ CHÍ MINH, NĂM 2021

MINISTRY OF INDUSTRY AND TRADE
HO CHI MINH CITY UNIVERSITY OF INDUSTRY AND TRADE

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

ACADEMIC PROGRAM

(Issued under Decision No: /QĐ-DCT dated by the Rector of Ho Chi Minh City University of Industry and Trade)

Program Name (Vietnamese): CÔNG NGHỆ THỰC PHẨM

Program Name (English): Food Technology

Level of Education: Master's Degree

Major: Food Technology

Major Code: 9540101

Discipline: Manufacturing and Processing

Mode of Study: Full-time

1. Educational Objectives

1.1. General Objectives

The Doctoral Program in Food Technology prepares graduates with advanced theoretical knowledge and high-level practical competence; the ability to conduct independent and innovative research with scientific thinking; the capability to identify and solve new scientific and technological problems in the field of Food Technology; leadership and team management competence; and the ability to teach at the undergraduate and master's levels in disciplines related to their field of specialization.

1.2. Specific Objectives

The Doctoral Program in Food Technology aims to achieve the following objectives:

- Provide advanced and specialized knowledge, and promote the application of Food Science and Technology in both theoretical and practical aspects throughout the food chain, from raw materials to finished products and consumers.
- Enhance research and innovation capabilities in Food Technology and related fields to solve practical problems, while strengthening the ability to work independently and collaboratively.
- Develop management, leadership, and professional competencies to undertake professional responsibilities at educational institutions of all levels or enterprises related to the field of specialization.

- Upon graduation, students are expected to demonstrate the following knowledge, skills, autonomy, and responsibility.

a. **Knowledge**

- Integrate advanced and specialized knowledge in the field of Food Science and Technology.
- Integrate core and fundamental knowledge in the selected research area of Food Science and Technology.
- Apply knowledge of organizing scientific research activities and developing new technologies in the field of Food Science and Technology.
- Apply knowledge of managing research organizations and applying research outcomes in the field of Food Science and Technology.

b. Skills

- Coordinate skills to master scientific theories, methods, and tools for research and development in the field of Food Science and Technology.
- Demonstrate proficiency in synthesizing, updating, and expanding specialized knowledge.
- Demonstrate proficiency in reasoning and analyzing scientific issues in the field of Food Science and Technology, and proposing creative and innovative solutions.
- Demonstrate proficiency in managing and leading professional activities in research and development in the field of Food Science and Technology.
- Demonstrate proficiency in discussion and collaboration in domestic and international research projects, as well as in presenting specialized knowledge and research findings..

c. **Autonomy and Responsibility**

- Integrate the skills required to master scientific theories, methods, and tools for research and development in the field of Food Science and Technology.
- Demonstrate proficiency in synthesizing, updating, and advancing specialized knowledge.
- Demonstrate proficiency in reasoning and analyzing scientific issues in the field of Food Science and Technology, and in developing creative and innovative solutions.
- Demonstrate proficiency in managing and leading research and development activities in the field of Food Science and Technology.
- Demonstrate proficiency in discussion and collaboration in national and international research projects, and in presenting specialized knowledge and research findings.

2. Program Learning Outcomes - PLOs

Upon completion of the program, learners will possess the following knowledge, skills, and professional competencies:

2.1. Program learning outcomes

Symbols	Program Learning Outcomes	Doctor's Profiency levels
a	**Knowledge**	
PLO1	Synthesize advanced and intensive knowledges of Food technology	5
PLO2	Synthesize core and basical knowledges in Food technology following chosen research (Note: core knowledges relating PhD student's research)	5
PLO3	Analyze knowledge of research organization in development of new technology in Food technology	4
PLO4	Apply knowledge of management in research organization and application in Food technology	3
b	**Skills**	
PLO5	Combine skills of mastering scientific theories, methods, tools for research and development in Food science and technology	4
PLO6	Integrate skills of synthesis, update and enrichment of professional knowledge	4
PLO7	Demonstrate skills of argument, analysis science matters in Food technology and susgest unique and creative solutions	4
PLO8	Demonstrate skills of management, administration in research and development in Food science and technology	4
PLO9	Demonstrate skills of discussion, coordination in dosmetic and international research projects, skill of presentation of prpfessional knowledge and research results.	4

Symbols	Program Learning Outcomes	Doctor's Profiency levels
c	**Autonomy & Responsibility**	
PLO10	Select new research field and knowledge creativity	5
PLO11	Discriminate new ideas, knowledge in different situations of research metters	4
PLO12	Sequence adaptibility, orientation and leadership, management of research group	4
PLO13	Relating intensive, basical and advanced knowledges to make professional decisions in Food technology	4
PLO14	Perform self-autonomy and responsibility of learning to develop professional knowledge, experience and to create new ideas and pprocesses in Food Technology	5

2.2. Matrix of Courses and Program Learning Outcomes (PLOs) for the Specialized Program

No.	Course Code	Internal Code	Course Title	Program Learning Outcomes (PLO)													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	0310101399	05100548	Research methodology and scientific paper writing	X		X		X	X				X				
2	0310101866	05400002	Modern technology for food traceability and authentication	X	X				X	X				X			
3	0310101895	05400003	Advanced Food Preservation Engineering	X	X			X	X	X			X				
4	0310101860	05400004	Engineering Properties of Food	X	X			X	X	X			X				
5	0310101861	05400005	Chemistry of Natural Products	X					X		X		X	X			
6	0310101862	05400006	Advanced Analytical Techniques in Food Analysis	X					X		X		X	X			
7	0310101863	05400007	Food Enzymology	X					X	X							X
8	0310101864	05400008	Functional Probiotics and Applications	X					X	X							X
9	0310101865	05400009	Advanced Transport Phenomena	X				X	X	X	X					X	X
10	0310101866	05400010	Modern technology for food traceability and authentication	X		X			X	X			X				
11	0310101867	05400011	Advanced Food Supply Chain Management	X		X			X	X			X				
12	0310101868	05400012	Membrane technology	X	X	X			X								
13	0310101869	05403013	Special Topics 1	X	X	X			X			X	X				X
14	0310101870	05403014	Special Topics 2	X	X	X			X			X	X				X

15	0310101871	05403015	Special Topics 3	X	X	X			X			X	X				X
16	0310101872	05406016	PhD Thesis	X	X	X	X		X		X	X	X		X		X
Courses aligned with program learning outcomes				16	8	8	1	4	16	8	4	3	11	3	1	1	7

3. Academic Workload

a. Doctoral Program for Applicants Holding a Master's Degree

No.	Knowledge Block	Credits	Percentage (%)
1	General Education	0	**0%**
2	Advanced Specialized Knowledge	12	13,3
3	Special Topics	18	20
4	PhD Thesis	60	66,7
Total credits		**90**	**100**

b. Doctoral Program for Applicants Holding a Bachelor's Degree

No.	Knowledge Block	Credits	Percentage (%)
1	General Education	03	2,5
2	Advanced Specialized Knowledge	39	32,5
3	Special Topics	18	15
4	PhD Thesis	60	50
Total credits		**120**	**100**

4. Admission Requirements

- Applicants holding a bachelor's degree or a master's degree in disciplines appropriate to the Doctoral Program in Food Technology from Ho Chi Minh City University of Industry and Trade or other accredited higher education institutions are eligible for admission. Appropriate disciplines include Food Technology, Food Safety and Quality Assurance, Postharvest Technology, Seafood Processing Technology, Biotechnology, and other equivalent disciplines.
- Applicants holding a master's degree in the same or an appropriate discipline are eligible to apply for admission immediately upon graduation. Applicants holding a master's degree in a related discipline are required to complete the prescribed prerequisite courses before applying for admission, in accordance with the University's prerequisite curriculum.

5. Admission Requirements

- In accordance with Circular No. 08/2017/TT-BGDĐT issued by the Minister of Education and Training on April 4, 2017, promulgating the Regulations on Doctoral Education.

- In accordance with the regulations of Ho Chi Minh City University of Industry and Trade.
- Have successfully completed all prerequisite doctoral-level courses.
- Have published at least two (02) papers reporting the results of the dissertation research, including at least one (01) paper published in an ISI- or Scopus-indexed scientific journal; or have published at least two (02) papers in English in the proceedings of peer-reviewed international conferences; or at least two (02) papers in peer-reviewed international scientific journals.
- Have been approved to register for dissertation proposal evaluation.

6. Learning Assessment Methods

In accordance with the Credit-Based Education Regulations (issued together with Decision No. 2474/QĐ-DCT dated October 14, 2020 of the President of Ho Chi Minh City University of Industry and Trade).

7. Training Duration: 03 years (04 years for doctoral candidates without a master's degree).

8. Degree Conferred: Doctor of Philosophy (PhD)

9. Career Opportunities

- Undertake postdoctoral research at research institutes and universities in Viet Nam and abroad.
- Serve as academic staff members or researchers at research institutes, universities, research and technology transfer centers, and organizations with activities related to the field of Food Technology in Viet Nam and abroad.
- Serve as managers or administrators responsible for advanced food research activities in food enterprises in Viet Nam and abroad.
- Serve as technical staff members or managers at food quality inspection and food safety centers, and relevant regulatory agencies.

10. Academic Progression and Post-Graduate Opportunities

Continue conducting advanced research or undertake postdoctoral research.

11. Curriculum Content

a. Doctoral Program for Applicants Holding a Master's Degree

No.	**Course Code**	**Internal Code**	**Course Title**	**Credit (s)**	**Course Conditions** (Pre-course (a); Prerequisite (b); Corequisite (c))	**Semester**

No.	Course Code	Internal Code	Course Title	Credit (s)	Course Conditions (Pre-course (a); Prerequisite (b); Corequisite (c))	Semester
I. Supplementary knowledge *(Based on the list of related fields and the candidate's transcript, the Head of Department will decide on the corresponding supplementary courses)*						**1-4**
II. Specialized knowledge				12		
Compulsory specialized Knowledge				4		
1.	0310101882	05400001	Advanced scientific research methods	2		1
2.	0310101858	05400002	Advanced technologies in food industry	2		1
Elective courses (Choose a minimum of 4 courses)				8		
3.	0310101895	05400003	Advanced Food Preservation Engineering	2		1,2
4.	0310101860	05400004	Engineering Properties of Food	2		1,2
5.	0310101861	05400005	Chemistry of Natural Products	2		1,2
6.	0310101862	05400006	Advanced Analytical Techniques in Food Analysis	2		1,2
7.	0310101863	05400007	Food Enzymology	2		1,2
8.	0310101864	05400008	Functional Probiotics and Applications	2		1,2
9.	0310101865	05400009	Advanced Transport Phenomena	2		1,2
10.	0310101866	05400010	Modern technology for food traceability and authentication	2		1,2
11.	0310101867	05400011	Advanced Food Supply Chain Management	2		1,2
12.	0310101868	05400012	Membrane technology	2		1,2
III. Reseaech topics				**18**		
13.	0310101869	05403013	Special Topics 1	6		1,2
14.	0310101870	05403014	Special Topics 2	6		3,4
15.	0310101871	05403015	Special Topics 3	6		5

No.	Course Code	Internal Code	Course Title	Credit (s)	Course Conditions (Pre-course (a); Prerequisite (b); Corequisite (c))	Semester
IV. Doctoral dissertation				**60**		
16.	0310101872	05406016	PhD Thesis	**60**		**5,6**
Total credits				**90**		

b. Doctoral Program for Applicants Holding a Bachelor's Degree

No.	Course Code	Internal Code	Course Title	Credit (s)	Course Conditions (Pre-course (a); Prerequisite (b); Corequisite (c))	Semester
Supplementary knowledge *(Based on the list of related fields and the candidate's transcript, the Head of Department will decide on the corresponding supplementary courses)*						**1-4**
I. General knowledge						
1.	0310100408		Philosophy	3		1,4
II. Specialized knowledge						
Compulsory specialized Knowledge				19		
2.	0310101399	05100548	Research methodology and scientific paper writing	2		1,4
3.	0310101400	05100504	Design of Experiment and Data Analysis	3		1,4
4.	0310100579	05100547	Structure and Physical Properties in Food Processing	2		1,4
5.	0310101401	05100509	Modern techniques in food processing	2		1,4
6.	0310100586	05100513	Protein and Enzyme Technology	2		1,4
7.	0310100587	05101514	Protein and Enzyme Technology Laboratory	1		1,4
8.	0310100584	05100511	Advanced Analytical Methods in Food	2		1,4

No.	Course Code	Internal Code	Course Title	Credit (s)	Course Conditions (Pre-course (a); Prerequisite (b); Corequisite (c))	Semester
			Analysis			
9.	0310101585	05101512	Advanced Analytical Methods in Food Analysis Laboratory	1		1,4
10	0310101882	05400001	Advanced scientific research methods	2		1,4
11	0310101858	05400002	Advanced technologies in food industry	2		1,4
Specialized Elective Courses (Choose a minimum of 10 courses)				**20**		
12.	0310100588	05100515	Bioactive substances: Collection and application	2		1,4
13.	0310100596	05100539	Food microencapsulation and nanoencaposulation	2		1,4
14.	0310100600	05100545	Bioprocessing Engineering	2		1,4
15.	0310101406	05100543	Advanced thermal food processing	2		1,4
16.	0310100595	05100537	Fermentation Technology	2		1,4
17.	0310100589	05100518	Food marketing and consumer research	2		1,4
18.	0310101407	05201131	Informatics Application in Food Technology	2		1,4
19.	0310100592	05200156	Food Safety Management	2		1,4
20.	0310101408	05200138	Food Supply chain management and traceability	2		1,4
21.	0310101409	05100550	Advanced nutrition	2		1,4
22.	0310101410	05100551	Advanced food preservation	2		1,4
23.	0310100591	05100552	Advanced food additives	2		1,4
24.	0310101895	05400003	Advanced Food Preservation Engineering	2		1,4

No.	Course Code	Internal Code	Course Title	Credit (s)	Course Conditions (Pre-course (a); Prerequisite (b); Corequisite (c))	Semester
25.	0310101860	05400004	Engineering Properties of Food	2		1,4
26.	0310101861	05400005	Chemistry of Natural Products	2		1,4
27.	0310101862	05400006	Advanced Analytical Techniques in Food Analysis	2		1,4
28.	0310101863	05400007	Food Enzymology	2		1,4
29.	0310101864	05400008	Functional Probiotics and Applications	2		1,4
30.	0310101865	05400009	Advanced Transport Phenomena	2		1,4
31.	0310101866	05400010	Modern technology for food traceability and authentication	2		1,4
32.	0310101867	05400011	Advanced Food Supply Chain Management	2		1,4
33.	0310101868	05400012	Membrane technology	2		1,4
III. Research topics				**18**		
34.	0310101869	05403013	Special Topics 1	6		3,4
14.	0310101870	05403014	Special Topics 2	6		5,6
35.	0310101871	05403015	Special Topics 3	6		7
IV. Doctoral dissertation				**60**		
36.	0310101872	05406016	PhD Thesis	**60**		**7,8**
Total Credits				**120**		

12. Training Curriculum

a. Doctoral Program for Applicants Holding a Master's Degree

No	Course Code	Internal Code	Course Title	Credit (s)	Note
Semester 1: 8 credits					
Compulsory Courses				**4 (4,0)**	

No	Course Code	Internal Code	Course Title	Credit (s)	Note
1.	0310101882	05400001	Advanced scientific research methods	2 (2,0)	
2.	0310101858	05400002	Advanced technologies in food industry	2 (2,0)	
Elective Courses (Select at least 4 course)				**4 (4,0)**	
1.	0310101895	05400003	Advanced Food Preservation Engineering	2 (2,0)	
2.	0310101860	05400004	Engineering Properties of Food	2 (2,0)	
3.	0310101861	05400005	Chemistry of Natural Products	2 (2,0)	
4.	0310101862	05400006	Advanced Analytical Techniques in Food Analysis	2 (2,0)	
Semester 2: 10 credits					
Compulsory Courses				**6 (0,6)**	
1.	0310101869	05407013	Special Topics 1	6 (0,6)	
Elective Courses (Select at least 4 course)				**4 (4,0)**	
1.	0310101863	05400007	Food Enzymology	2 (2,0)	
2.	0310101864	05400008	Functional Probiotics and Applications	2 (2,0)	
3.	0310101865	05400009	Advanced Transport Phenomena	2 (2,0)	
4.	0310101866	05400010	Modern technology for food traceability and authentication	2 (2,0)	

No	Course Code	Internal Code	Course Title	Credit (s)	Note
5.	0310101867	05400011	Advanced Food Supply Chain Management	2 (2,0)	
6.	0310101868	05400012	Membrane technology	2 (2,0)	
Semester 3: 6 credits					
Compulsory Courses				**6 (0,6)**	
1.	0310101870	05407014	Special Topics 2	6 (0,6)	
Semester 4: 6 credits					
Học phần bắt buộc				**6 (0,6)**	
1.	0310101871	05407015	Special Topics 3	6 (0,6)	
Semester 5,6: 60 credits					
Compulsory Courses				**60 (0,60)**	
1.	0310101872	05406016	*PhD Thesis*	60 (0,60)	

b. Doctoral Program for Applicants Holding a Bachelor's Degree

No.	Course Code	Internal Code	Course Title	Credit (s)	Note
Semester 1: 16 credits					
Compulsory Courses				**16(16, 0)**	

No.	Course Code	Internal Code	Course Title	Credit (s)	Note
1.	0310100408	11100011	Philosophy	3(3,0)	
2.	0310101399	05100548	Research methodology and scientific paper writing	2(2,0)	
3.	0310101400	05100504	Design of Experiment and Data Analysis	3(3,0)	
4.	0310100579	05100547	Structure and Physical Properties in Food Processing	2(2,0)	
5.	0310101401	05100509	Modern techniques in food processing	2(2,0)	
6.	0310100586	05100513	Protein and Enzyme Technology	2(2,0)	
7.	0310100584	05100511	Advanced Analytical Methods in Food Analysis	2(2,0)	
Semester 2: 10 credits					
Compulsory Courses				**2(0,2)**	
1.	0310100587	05101514	Protein and Enzyme Technology Laboratory	1(0,1)	
2.	0310101585	05101512	Advanced Analytical Methods in Food Analysis Laboratory	1(0,1)	
Elective Courses (Select at least 8 course)				**8(8,0)**	
3.	0310100588	05100515	Bioactive substances: Collection and application	2(2,0)	
4.	0310100596	05100539	Food microencapsulation and nanoencaposulation	2(2,0)	
5.	0310100	051005	Bioprocessing Engineering	2(2,0)	

No.	Course Code	Internal Code	Course Title	Credit (s)	Note
	600	45			
6.	0310101406	05100543	Advanced thermal food processing	2(2,0)	
7.	0310100595	05100537	Fermentation Technology	2(2,0)	
8.	0310100589	05100518	Food marketing and consumer research	2(2,0)	
Semester 3: 12 credits					
Compulsory Courses				**4(4,0)**	
1.	0310101882	05400001	Advanced scientific research methods	2(2,0)	
2.	0310101858	05400002	Advanced technologies in food industry	2(2,0)	
Elective Courses (Select at least 4 course)				**8(8,0)**	
3.	0310101407	05201131	Informatics application in Food Technology	2(2,0)	
4.	0310100592	05200156	Food Safety Management	2(2,0)	
5.	0310101408	05200138	Food supply chain management and traceability	2(2,0)	
6.	0310101409	05100550	Advanced nutrition	2(2,0)	
7.	0310101410	05100551	Advanced food preservation	2(2,0)	
8.	0310100591	05100552	Advanced food additives	2(2,0)	

No.	Course Code	Internal Code	Course Title	Credit (s)	Note
9.	0310101895	05400003	Advanced Food Preservation Engineering	2(2,0)	
10.	0310101860	05400004	Engineering Properties of Food	2(2,0)	
11.	0310101861	05400005	Chemistry of Natural Products	2(2,0)	
12.	0310101862	05400006	Advanced Analytical Techniques in Food Analysis	2(2,0)	
Semester 4: 10 credits					
Compulsory Courses				**6(0,6)**	
1.	0310101869	05407013	Special Topics 1	6(0,6)	
Elective Courses (Select at least 4 course)				**4(4,0)**	
1.	0310101863	05400007	Food Enzymology	2(0,2)	
2.	0310101864	05400008	Functional Probiotics and Applications	2(0,2)	
3.	0310101865	05400009	Advanced Transport Phenomena	2(0,2)	
4.	0310101866	05400010	Modern technology for food traceability and authentication	2(0,2)	
5.	0310101867	05400011	Advanced Food Supply Chain Management	2(0,2)	
6.	0310101868	05400012	Membrane technology	2(0,2)	
Semester 5: 6 credits					

No.	Course Code	Internal Code	Course Title	Credit (s)	Note
Compulsory Courses				**6(0,6)**	
1.	0310101870	05407014	Special Topics 2	6(0,6)	
Semester 6: 6 credits					
Compulsory Courses				**6(0,6)**	
1.	0310101871	05407015	Special Topics 3	6(0,6)	
Semester 7,8: 60 credits					
Compulsory Courses				**60(0,60)**	
1.	0310101872	05406016	PhD Thesis	60(0,60)	

13. Implementation Guidelines

13.1. For Faculties and Departments

- Review the curriculum to ensure its implementation complies with the program requirements and content.
- Assign lecturers to each course and provide them with the detailed course syllabus to ensure a stable teaching plan.
- Prepare academic advisors with a thorough understanding of the credit-based curriculum to effectively guide students in course registration.
- Provide adequate textbooks, reference materials, and facilities to ensure effective program implementation.
- Ensure the logical sequencing of knowledge delivery and acquisition, designate prerequisite courses for compulsory courses, and prepare lecturers to teach elective courses.

13.2. For Lecturers

- Lecturers assigned to teach one or more course units shall carefully study the

detailed course syllabus of each course unit in order to prepare lectures and appropriate teaching materials and instructional aids.

- Lecturers shall prepare and provide students with the required textbooks and learning materials at least one week in advance so that students can prepare before attending classes.
- Organize seminars for students, with particular emphasis on group learning and providing guidance for students in preparing term papers and projects. Lecturers shall determine appropriate teaching methods, including classroom presentations, guided discussions, problem-solving activities in classrooms, workshops, and laboratories, and provide guidance for students in preparing written reports.
- **13.3. For** graduate
- Study the curriculum before attending classes to facilitate understanding of lectures.
- Attend classes regularly to receive lecturers' guidance.
- Be proactive in self-study and independent learning, and actively participate in group learning and seminars.
- Actively utilize online resources and the University's library to support self-study, independent learning, and the graduation project.
- Strictly comply with examination, assessment, and evaluation regulations.

14. Program Approval

HCMC, [Date] [Month] 20...
CHAIRMAN OF THE SCIENTIFIC & TRAINING COUNCIL

HCMC, [Date] [Month] 20...
DEAN OF THE FACULTY

HCMC, [Date] [Month] 20...
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