Training Program and Progress – Food Technology Major (Formal University Program)

(Applied from intake 2020 – Code: 08DHTP)

No.	Program and Progress of the Food Technology Major	Content
1	Output standards of the Food Technology program	Details
2	General training progress of the Food Technology major	Details
3	Training progress by academic semester of the Food Technology major	Details

List of Courses in the Food Technology Curriculum

1. | Marxist-Leninist Philosophy | The Marxist-Leninist Philosophy course provides learners with fundamental knowledge of Marxism-Leninism regarding worldview and scientific methodology; the basic contents of dialectical materialism and historical materialism; the role of Marxist-Leninist philosophy. From this, learners apply the acquired knowledge to address issues arising in their cognitive and practical activities. It fosters self-awareness, proactiveness in understanding, and correct implementation of the Party's guidelines, and the State's policies and laws in the current process of building socialism in Vietnam. | 3 (3,0) | Details
2. | Marxist-Leninist Political Economy | The Marxist-Leninist Political Economy course provides learners with fundamental knowledge about the formation and development of Marxist-Leninist Political Economy; the commodity economy; the development of capitalism, the objective basis for socialist-oriented market economy development policies; and the issues of industrialization-modernization and international economic integration in Vietnam today. From this, learners apply the law-governed principles of Marxist-Leninist Political Economy in their cognitive and practical activities, developing an awareness of adhering to the Party's guidelines and policies with an objective, honest, and trusting attitude; and actively combating incorrect views on the socialist-oriented market economy development policies in Vietnam today. | 2 (2,0) | Details
3. | Scientific Socialism | The Scientific Socialism course provides learners with fundamental knowledge about the process of forming socialism, the historical mission of the working class, the basic characteristics, political-social issues

of socialism (CNXH), and the transitional period to socialism. Based on this fundamental knowledge, students are able to apply what they have learned to examine and evaluate the country's political-social issues related to socialism (CNXH) and the path to socialism in Vietnam. It fosters a correct, objective political and ideological attitude towards the socialist path chosen by the Communist Party of Vietnam, and trust in the Party's guidelines and policies and the State's laws. | 2 (2,0) | Details

4. | Ho Chi Minh Thought | The "Ho Chi Minh Thought" course provides learners with knowledge about the origin and stages of formation and development of Ho Chi Minh Thought; Ho Chi Minh's thought on the fundamental issues of the Vietnamese revolution. From this, students are able to apply Ho Chi Minh Thought in practical work to proactively address socio-economic issues according to Ho Chi Minh's thought and ethics in the current period. | 2 (2,0) | Details
5. | History of the Communist Party of Vietnam | Provides learners with fundamental knowledge about the birth of the Communist Party of Vietnam, the Party's leadership in the resistance wars against French colonialists, American imperialists, and the cause of building and defending the Fatherland during the đổi mới (renovation) period. From this, students are able to apply historical understanding to practical work and proactively address socio-economic issues according to the Party's guidelines and policies in the current period. | 2 (2,0) | Details
6. | English 1 | This course equips students with foreign language proficiency at level A1 of the 6-level Foreign Language Proficiency Framework for Vietnam as stipulated in Circular 01/2014/TT-BGDĐT for studying, researching foreign materials, and job opportunities for students after graduation. The course focuses on improving foreign language proficiency in 4 skills: Listening, Speaking, Reading, Writing, with the participation and guidance of foreign teachers for 1/3 of the program. The course utilizes an online platform for students' self-study at home for 90 periods. | 3 (3,0) | Details
7. | English 2 | This course equips students with foreign language proficiency at level A2 of the 6-level Foreign Language Proficiency Framework for Vietnam as stipulated in Circular 01/2014/TT-BGDĐT for studying, researching foreign materials, and job opportunities for students after graduation. The course focuses on improving foreign language proficiency in 4 skills: Listening, Speaking, Reading, Writing, with the participation and guidance of foreign teachers for 1/3 of the program. The course utilizes an online platform for students' self-study at home for 90 periods. | 3 (3,0) | Details
8. | English 3 | This course equips students with foreign language proficiency at level B1 of the 6-level Foreign Language Proficiency Framework for Vietnam as stipulated in Circular 01/2014/TT-BGDĐT for studying, researching foreign materials, and job opportunities for students after graduation. The course focuses on improving foreign language proficiency in 4 skills: Listening,

Speaking, Reading, Writing, with the participation and guidance of foreign teachers for 1/3 of the program. The course utilizes an online platform for students' self-study at home for 90 periods. | 3 (3,0) | Details

9. | Information Technology Application Skills | This course equips students with basic foundational knowledge and skills in computers and computer networks; applications of information and communication technology (ICT); basic skills on the Windows operating system; skills in using utility software: word processing with Ms Word, presentations with Ms PowerPoint, spreadsheets with Ms Excel, project planning with Microsoft Project, Internet usage, and editing electronic information pages with WordPress for learners to apply in study and research. It also trains learners to be aware of occupational safety and information security when working with computers, and to respect copyright and information confidentiality. | 3 (1,2) | Details
10. | Advanced Mathematics A1 | This course provides students with a system of knowledge on limits, continuity, derivatives, differentials of single and multiple real-valued functions (2, 3 variables); antiderivatives, definite integrals, improper integrals of single-variable functions, multiple integrals, line integrals; numerical series, power series, and first and second-order differential equations; it illustrates the applicability of this knowledge to solve various problems in engineering and technology. In addition, the course also trains students to apply theory and use software to solve basic problems, as well as those linked to real-world data. Furthermore, students are expected to work in teams and approach and solve problems scientifically. | 3 (3,0) | Details
11. | Advanced Mathematics A2 | This course equips students with fundamental knowledge and applications of linear algebra. The content includes: matrices, determinants, systems of linear algebraic equations, vector spaces, Euclidean spaces, linear transformations, eigenvalues, eigenvectors, and matrix diagonalization; skills to apply the aforementioned knowledge to solve linear models in engineering and technology; it fosters a serious attitude and a spirit of cooperation in learning and research, adhering to requirements for honesty and high responsibility. | 2 (2,0) | Details
12. | Physical Education 1 | The Physical Education 1 course equips students with fundamental knowledge about the history of formation and development, effects, principles and training methods, technical principles, and the formation of initial specialized motor skills and abilities in one of the 6 sports, including: Volleyball, Swimming, Badminton, Football, Martial Arts, Bodybuilding. At the same time, it fosters self-awareness in exercising, health training, and group activity skills. | 2 (0,2) | Details
13. | Physical Education 2 | The Physical Education 2 course equips students with fundamental knowledge about competition rules, effects, principles and training methods, the formation of basic and advanced specialized motor skills and abilities, and refereeing methods in competition for one of the 6

sports, including: Volleyball, Swimming, Badminton, Football, Martial Arts, Bodybuilding. At the same time, it fosters self-awareness in exercising, health training, and group activity skills. | 2 (0,2) | Details

14. | Physical Education 3 | The Physical Education 3 course equips students with fundamental knowledge about competition organization and refereeing methods for some sports; effects, principles and training methods, and the formation of basic and advanced specialized motor skills and abilities in one of the 6 sports, including: Volleyball, Swimming, Badminton, Football, Martial Arts, Bodybuilding. At the same time, it fosters self-awareness in exercising, health training, and group activity skills. | 1 (0,1) | Details
15. | National Defense and Security Education 1 | Education on the views of Marxism-Leninism and Ho Chi Minh Thought on War, the Army, and National Defense. Content on building national defense and security. People's war to firmly protect the Fatherland. The work of building the people's armed forces. The issue of combining economic development with strengthening national defense in our country. History of Vietnamese military art. Introduction to the current work of protecting Vietnam's sea and island sovereignty. The issue of non-traditional security and national security protection, building the all-people movement to protect national security. | 3 (3,0) | Details
16. | National Defense and Security Education 2 | Content on preventing and combating the strategic plot of "peaceful evolution" and riots to overthrow by hostile forces against the Vietnamese revolution; some contents on ethnicity and religion. Prevention and control of environmental protection law violations; violations of traffic safety law; some crimes infringing on human honor and dignity; information security and prevention of cybercrime; non-traditional security and non-traditional security threats in Vietnam. | 2 (2,0) | Details
17. | National Defense and Security Education 3 | Module 3. General Military includes: daily and weekly routines for living, studying, and working; standard military discipline, arrangement of internal affairs in barracks. Understanding of military branches in the army; individual drill regulations with firearms; general knowledge of military topographic maps; prevention of enemy high-tech firepower attacks, and three combined military subjects. | 1 (1,0) | Details
18. | National Defense and Security Education 4 | Module 4. Infantry Combat Techniques and Tactics, includes: AK submachine gun shooting technique; features, structure, and usage of some types of grenades - grenade throwing exercise 1; individual in offensive combat; individual in defensive combat, and individual on guard duty (sentry). | 2 (2,0) | Details Elective General Education Knowledge (Choose at least 1 course from Group A and at least 1 course from Group B) | | | Group A: Choose at least 1 course | | | |
19. | Probability and Statistics in Production, Technology, Engineering | This course provides fundamental knowledge of probability and statistics: Random variables, probability distribution laws of random variables, population and

samples; characteristic parameters of random variables and sample parameters; formulas for calculating probability; estimation problems and hypothesis testing in statistics, and correlation-regression; exercises applying theory, and applied exercises in engineering - technology. | 2 (2,0) | Details

20. | Inorganic Chemistry | The Inorganic Chemistry course provides undergraduate students in chemical engineering technology with basic and systematic knowledge about the structure, nature of bonding, physical-chemical properties, preparation methods, and applications of elements and compounds of typical elements, from s-block, p-block, to d-block elements and complexes. It applies theoretical foundations of substance structure and chemical processes to explain chemical phenomena related to daily life, production, and the environment, thereby fostering an awareness of contributing to environmental protection. | 2 (2,0) | Details
21. | Engineering Physics | This course provides students with a system of fundamental general physics knowledge and some specialized topics in modern physics. Students will be able to apply the acquired knowledge to describe and explain physical phenomena in nature; identify and explain the operating principles, and guide improvements for the efficiency of some equipment in science, technology, and daily life. It promotes self-study activities, group work, communication, and the development of scientific research capabilities. | 2 (2,0) | Details Group B: Choose at least 1 course | | | |
22. | General Law | The course equips learners with theoretical and practical knowledge about the origin of the state and law, the content of the Vietnamese legal system, the nature of legal relationships, legal violations, and legal liability; important institutions of constitutional law, administrative law, labor law, civil law, marriage and family law, and criminal law. It trains learners in skills to apply legal provisions in work and life, helps learners have correct awareness and voluntarily comply with legal provisions, and advises others to comply with legal provisions. | 2 (2,0) | Details
23. | Logic | This course provides learners with fundamental knowledge of the laws (identity, non-contradiction, excluded middle, sufficient reason) and basic forms (concepts, judgments, inferences) of thought, aiming for a correct understanding of objective reality. In addition, the course provides some tools (propositional operations, syllogisms) to analyze and answer questions in specific cases. | 2 (2,0) | Details
24. | Communication Skills | Communication Skills is one of the courses aimed at providing basic communication knowledge to most students across all disciplines in the entire university, from college to university level. The course includes fundamental knowledge about communication such as: General overview of communication (concepts, functions of communication, communication process, types of communication, etc.), communication means (non-verbal communication and verbal communication), basic communication skills (listening skills, speaking and questioning skills, praise -

criticism skills, etc.), intercultural communication (issues of intercultural communication, communication culture of Vietnamese people and some countries around the world, etc.). This course helps students further improve their communication skills. It is also an important stepping stone that brings them closer to success. | 2 (2,0) | Details

25. | General Economics | This course will provide students with fundamental knowledge such as: supply, demand, and market; consumer choice theory; theory of production and production costs; business operations in various types of markets; in addition, economic factors of government policies and tools to regulate the macroeconomy. | 2 (2,0) | Details II. Core Major Knowledge | | | | Compulsory Core Major Knowledge | | | |
26. | Technical Drawing | This course equips students with knowledge on technical drawing standards, methods of constructing shapes, orthogonal projections, isometric projections, sections, and details to represent objects on a plane. After completing this course, students will apply construction methods to create a technical drawing according to Vietnamese Standards (TCVN), thereby producing complete technical drawings and demonstrating the ability to work independently, take personal responsibility, and be conscious of learning and defending personal views. | 2 (2,0) | Details
27. | Laboratory Techniques | The "Laboratory Techniques" course equips learners with fundamental knowledge and skills regarding common laboratory techniques. Furthermore, the course provides knowledge about safety when working in the laboratory, thereby helping learners organize laboratory equipment. | 1 (0,1) | Details
28. | General Biology | General Biology is a course that provides fundamental biological knowledge, including content related to life science, the structure and function of organelles within cells, photosynthesis, respiration, plant biology, and animal biology. In addition, learners can explain some biological phenomena and mechanisms in daily life. Furthermore, learners can apply the knowledge and skills acquired in General Biology to subsequent specialized courses. | 2 (2,0) | Details
29. | Organic Chemistry | This course helps students understand issues in organic chemistry such as stereochemistry and various effects; mechanisms of organic reactions; mechanisms of organic reactions; structure, nomenclature, physical properties, chemical properties, preparation, and applications of hydrocarbon compounds such as alkanes, alkenes, alkynes, arenes, and hydrocarbon derivatives such as: halogen derivatives, alcohols, phenols, aldehydes, ketones, carboxylic acids and acid derivatives, amines, and diazonium salts. | 3 (3,0) | Details
30. | Physical Chemistry - Colloid Chemistry | The "Physical Chemistry - Colloid Chemistry" course provides learners with basic knowledge and skills regarding phase equilibrium, the distribution equilibrium of solutes between two immiscible solvents; the structure, surface phenomena, and physical-

chemical properties, as well as the role and preparation methods of heterogeneous dispersion systems (colloid systems) and polymer solutions. | 2 (2,0) | Details

31. | Analytical Chemistry | This course provides learners with knowledge about the concepts and formulas for calculating various types of concentrations, the laws commonly used in analytical chemistry; the theoretical basis, experimental conditions, and applications of classical analytical methods (acid-base titration, complexometric titration, precipitation titration, redox titration, gravimetric analysis), and methods for calculating analytical results. | 2 (2,0) | Details
32. | Analytical Chemistry Experiment | This course provides learners with knowledge about the concepts and formulas for calculating various types of concentrations, the laws commonly used in analytical chemistry; the theoretical basis, experimental conditions, and applications of classical analytical methods (acid-base titration, complexometric titration, precipitation titration, redox titration, gravimetric analysis), and methods for calculating analytical results. | 1 (0,1) | Details
33. | Food Chemistry | The Food Chemistry course provides learners with knowledge about the role, structure, and properties of compounds in food, including water, proteins, carbohydrates, lipids, vitamins, and minerals. Based on the chemical nature of these compounds, it explains the reactions occurring between components in food and the technological functionalities applied in food processing and preservation. | 2 (2,0) | Details
34. | Food Biochemistry | The Food Biochemistry course equips learners with knowledge about the metabolism of important compounds in food, including proteins, carbohydrates, and lipids, under the influence of physical, chemical, and especially enzymatic factors; thereby applying this knowledge to control chemical reactions during food processing and to predict reactions that limit the shelf life of food. | 2 (2,0) | Details
35. | Food Chemistry and Biochemistry Experiments | This course provides learners with basic experiments (qualitative, quantitative, and property investigations) of compounds commonly found in food, including proteins, enzymes, carbohydrates, lipids, vitamins, and water. Additionally, the course helps develop skills related to theoretical knowledge, real-world production, and food quality control, as well as calculation, data processing, and teamwork skills. | 1 (0,1) | Details
36. | Food Microbiology | The "Food Microbiology" course equips learners with fundamental knowledge about food microorganisms, including their classification, characteristics, physiology, and growth; the conditions, equipment, and factors influencing the production process using microorganisms. In-depth knowledge of food microbiology provided to learners includes microbial technology applied in fermentation to produce

food products, microorganisms causing food spoilage and preservation methods, and pathogenic microorganisms and food safety. | 3 (3,0) | Details
37. | Food Microbiology Experiments | The "Food Microbiology Experiments" course equips learners with safety rules and introduces instruments in the microbiology laboratory; skills for observing microorganisms under a microscope (live and Gram-stained slides); techniques for preparing microbial culture media; techniques for sample dilution, pour plate, and spread plate; application of microorganisms in food and seafood fermentation, calculation skills, data processing, and teamwork skills. | 1 (0,1) | Details
38. | Introduction to Food Technology | The "Introduction to Food Technology" course equips learners with methods for collecting data, developing technological processes for producing a food product, experimenting with food processing processes at laboratory scale, improving and developing products, evaluating product quality, calculation skills, data processing, and teamwork skills. | 1 (0,1) | Details
39. | Physical Properties of Food Materials | The "Physical Properties of Food Materials" course provides learners with fundamental knowledge about the basic physical attributes of raw materials and food products. It describes various volumetric forms, rheology, and methods for determining melting points, as well as the optical properties of different food material forms. It explains thermal, electromagnetic phenomena, structural forms, and electrochemistry in food technology and processing. Additionally, it familiarizes learners with thermal, electromagnetic equipment, and instruments for measuring structure and electrochemistry used to determine certain properties of food materials. | 2 (2,0) | Details
40. | Food Engineering 1 | This course equips learners with fundamental knowledge about machines and equipment (transport, size reduction, washing, mixing, filling, and metering, etc.) used in food processing, and technological processes in food production. Furthermore, the course helps students develop the ability to calculate, analyze, and solve problems in food production; and the ability to select and apply equipment in food production lines. | 3 (3,0) | Details
41. | Food Engineering 2 | The "Food Engineering 2" course equips learners with fundamental knowledge about heat exchange, heat transfer techniques applied in food processing such as heating, cooling, pasteurization, sterilization, concentration, blanching, drying, etc.; how to calculate the basic parameters of heat equipment; and how to select the correct methods and equipment for heat treatment processes in food processing technology. | 3 (3,0) | Details
42. | Food Engineering 3 | The "Food Engineering 3" course provides learners with fundamental knowledge about diffusion and mass transfer processes applied in food technology; techniques for carrying out mass transfer processes such as distillation, absorption, extraction, etc.; the structure and operating

principles of mass transfer equipment; how to calculate the basic parameters of mass transfer equipment; and how to select the correct methods and equipment for mass transfer processes in food processing technology. | 2 (2,0) | Details

43. | Food Engineering Practice | The "Food Engineering Practice" course provides learners with practical knowledge and skills concerning the mechanical, heat transfer, and mass transfer processes and equipment used in food processing technology, and the application and operation of equipment systems for efficient production. It also serves as a foundation for future course projects and graduation theses. It helps learners develop an approach and methodology for in-depth study of mechanical, heat transfer, and mass transfer processes and equipment in food technology, thereby providing specific orientations for learning, research, and career development. | 1 (0,1) | Details
44. | Food Hygiene and Safety | The "Food Hygiene and Safety" course provides learners with fundamental knowledge about biological, chemical, and physical hazards in food; the impact of soil, water, and air environmental pollution on food hygiene and safety; conditions and methods for ensuring food hygiene and safety; and legal documents related to food hygiene and safety management. In addition, this course also equips learners with the necessary skills to research, identify, analyze, and control hazards in food safety management. At the same time, learners develop an awareness and correctly adhere to regulations in food hygiene and safety management. | 2 (2,0) | Details Elective Core Major Knowledge | | | |
45. | Innovation and Entrepreneurship | The Innovation and Entrepreneurship course provides learners with a comprehensive overview of the creative entrepreneurial journey. The curriculum teaches students how to identify, develop, evaluate, and act upon opportunities to transform them into new products or services that bring pioneering value to human life. The program is designed for students to practice and experience knowledge about the creative entrepreneurial journey, which is a process of searching, exploring, acting, and iterative refinement. Applying effective practical thinking and constructive thinking will help students develop their self-competence, self-direct their careers, develop competence and the mindset of an owner, enabling them to create new businesses or be innovation hubs within existing environments, organizations, and enterprises. The ability to "think like an entrepreneur" and "act like innovators" are essential skills for success in all industries, and are considered effective tools to help individuals excel in the workplace, creating a distinction in competence and future success. | 2 (2,0) | Details
46. | Corporate Culture | This course aims to provide knowledge about culture and how to build culture within organizations, enabling learners to acquire the necessary skills when integrating into an organization's work environment; to

build and establish organizational cultural standards in communication activities with society and the community. | 2 (2,0) | Details

47. | Culinary Culture | Culinary Culture is one of the courses within the specialized knowledge block in the training program for engineers in Nutrition Science and Culinary Arts, Hotel Management, and Food Technology majors. This course analyzes general issues related to culinary culture, eating habits and preferences, and describes in detail the eating habits and preferences of Asian countries, as well as the European and American regions. At the same time, this course synthesizes content related to religious cuisine to serve activities in food services, community nutrition, hotels, and kitchens; it is closely related to preparing nutritionally balanced and food-safe dishes. The course belongs to the group of essential and important knowledge and skills that form the foundation for nutrition science and culinary, operation and supervision, as well as helping to implement appropriate management measures in restaurant, hotel, nutrition center, food chain stores, and food service fields. | 2 (2,0) | Details
48. | Food Toxicology | This course provides students with general concepts of food toxicology, general knowledge about the mechanisms of absorption, distribution, and excretion of toxic substances after entering the human body, the origin, and factors forming food toxins (toxins of biological origin, chemical agents, physical agents). In addition, this course also equips knowledge about food allergies, such as an overview of food allergies, the mechanism causing allergic phenomena, and some measures to manage and limit food poisoning and allergic reactions. | 2 (2,0) | Details
49. | Functional Foods | The "Functional Foods" course provides learners with a comprehensive system of knowledge about functional foods, including concepts and definitions; legal regulations on the production, business, and labeling of functional foods; groups of raw materials and active ingredients with biological characteristics and benefits for health, and the application of legal regulations; characteristics and biological benefits of raw materials for producing and marketing functional foods that are beneficial and safe for health. | 2 (2,0) | Details III. Major-Specific Knowledge (Stage 1 – Bachelor's Degree) | | | | Compulsory Major-Specific Knowledge | | | |
50. | Specialized English for Food Technology | The Specialized English for Food Technology course equips learners with knowledge and skills for reading comprehension, synthesizing, and presenting specialized English documents in food science and technology, ensuring food safety and quality management. | 2 (2,0) | Details
51. | Post-Harvest Technology | This course provides learners with fundamental knowledge about the concept and role of current post-harvest technology; an overview of raw materials and characteristics of agricultural products after harvest, spoilage phenomena, causes of loss, handling methods, and preservation methods for post-harvest agricultural products; analysis and

resolution of problems in post-harvest agricultural product preservation; and the selection and application of technological methods and equipment in the process of preserving food agricultural products. | 2 (2,0) | Details

52. | Food Processing Technology | The "Food Processing Technology" course equips learners with fundamental knowledge about food, food technology; the nature, purpose, and changes of technological processes in food production; the ability to calculate, analyze, and solve problems in food production; and the ability to select and apply equipment in production lines for various types of food products. | 3 (3,0) | Details
53. | Food Packaging and Packing Technology | The Food Packaging and Packing Technology course provides learners with fundamental knowledge about food packaging, the advantages and disadvantages of different packaging types, raw materials for packaging production, technological processes, as well as quality management measures in packaging production and food packing, and the applications of various packaging types in food processing technology. | 2 (2,0) | Details
54. | Nutrition | The Nutrition course aims to provide fundamental knowledge and skills in nutrition: Concepts, the history of nutrition, the development of nutrition science in Vietnam, and the significance of nutrition; the human digestive system; nutrients and their metabolism; determining energy needs and principles for creating and evaluating diets, and menu planning. Learners apply this knowledge and these skills to effectively provide nutritional care. | 2 (2,0) | Details
55. | Food Additives | The "Food Additives (PGTP)" course provides learners with a general overview of PGTP compounds, including their characteristics, toxicity, functions, and technological roles in food, as well as legal issues related to PGTP and the ability to apply the properties of PGTP to achieve technological efficiency and food safety in food production, and to apply legal regulations on PGTP in quality assurance and food safety activities in food production and business. | 2 (2,0) | Details
56. | Product Development | The "Product Development (PTSP)" course provides learners with fundamental knowledge about food PTSP activities in enterprises, including the basic activities and factors of the PTSP process, the key conditions for effective PTSP implementation, and basic skills to participate in market opportunity identification; idea generation; market analysis and research; technology analysis; risk analysis and management; planning and conducting product research and testing to meet the objectives of the PTSP project. | 2 (2,0) | Details
57. | Food Technology and Factory Design | The "Food Technology and Factory Design" course provides learners with fundamental knowledge about food factory design; economic-technical arguments for selecting factory construction sites, choosing technological processes that meet design objectives; the ability to calculate, analyze, and solve problems in food factory

design; the ability to select processes and calculate equipment; and the layout of production lines in food production workshops. | 2 (2,0) | Details
58. | Experimental Design and Data Processing | This course provides learners with knowledge about experimental design and data processing, optimization, and data processing. This knowledge is applied in quality assurance and optimization of food processing operations. The course includes content such as:
 Basic concepts of experimental design and optimization
 Basic statistical concepts, analysis of variance, and multivariate regression
 Single-factor experimental design, full and fractional factorial experimental design
 Optimization using the response surface method
 Performing experimental design and data analysis using statistical software | 3 (2,1) | Details
59. | Quality Assurance and Food Law | The "Quality Assurance and Food Safety" course equips learners with fundamental knowledge about quality assurance and food safety, quality and safety management systems, and food laws and regulations. | 2 (2,0) | Details
60. | Food Sensory Evaluation | The "Food Sensory Evaluation" course provides learners with knowledge about sensory evaluation methods, the role and application of sensory evaluation in the food industry; the structure and function of the senses; the relationship between stimulus intensity and sensory thresholds; and factors that cause bias in a sensory test. | 2 (2,0) | Details
61. | Practical Food Sensory Evaluation | The "Practical Food Sensory Evaluation" course equips learners with specialized skills and knowledge, including organizing and conducting sensory experiments; processing data and interpreting experimental results based on the theoretical foundation of food sensory evaluation. Additionally, this course also provides learners with teamwork skills and the ability to write sensory experiment reports. | 1 (0,1) | Details
62. | Food Physicochemical Analysis 1 | The "Food Physicochemical Analysis 1" course provides learners with fundamental knowledge about food physicochemical analysis; the structure and operation of analytical equipment; the principles and scope of application of analytical methods; and the analytical procedures and calculation of results for some basic food parameters. | 2 (2,0) | Details
63. | Food Physicochemical Analysis Experiments 1 | The "Food Physicochemical Analysis Experiments 1" course provides learners with practical methods for quantifying basic parameters in food. Additionally, the course helps develop skills related to theoretical knowledge, real-world quality control, and food safety inspection. | 2 (0,2) | Details
64. | Food Microbiological Analysis | The "Food Microbiological Analysis" course provides learners with fundamental knowledge in the field of microbiological analysis to analyze microbial parameters, explain related issues for practical

application in testing, understand equipment in microbiology laboratories; the ability to explain implementation steps; and the ability to recognize and interpret analytical results. | 2 (2,0) | Details

65. | Food Microbiological Analysis Experiments 1 | The "Practical Food Microbiological Analysis 1" course provides learners with measurement operations for media preparation, precise and safe handling, and proactive control of instruments and equipment during the analysis process. Additionally, the course helps develop skills related to theoretical knowledge, real-world production, and food product quality control, as well as calculation, data processing, and teamwork skills. | 1 (0,1) | Details
66. | Practical Meat, Seafood, and Sauce/Seasoning Processing Technology | The "Practical Meat, Seafood, and Sauce/Seasoning Processing Technology" course equips learners with practical skills in producing certain meat, seafood, and sauce/seasoning products such as canned goods, head cheese, frozen shrimp, chili sauce, and marinated meat sauces. Additionally, the course helps develop calculation skills, problem-solving abilities related to production, and teamwork skills. | 1 (0,1) | Details
67. | Practical Staple Food, Tea, Coffee, Cocoa Processing Technology | The "Practical Staple Food, Tea, Coffee, Cocoa Processing Technology" course equips learners with the processing procedures for rice, bread, noodles, scented tea, roasted coffee, and chocolate. Additionally, the course helps develop skills to connect theoretical knowledge with real-world production in the field of staple foods, tea, coffee, and cocoa processing; calculation skills, data processing, and teamwork skills. | 1 (0,1) | Details
68. | Practical Sugar, Bakery, Confectionery Production Technology | This course provides learners with the technological processes for production as well as methods for quality control of sugar, biscuit, and candy products. Additionally, the course helps develop skills to connect theoretical knowledge with solving real-world production problems. From this, students will be able to operate and supervise production processes and address food hygiene and safety issues throughout the production of sugar, bakery, and confectionery products. | 1 (0,1) | Details
69. | Practical Alcohol, Beer, and Soft Drink Production Technology | The "Practical Alcohol, Beer, and Soft Drink Production Technology" course equips learners with the technological processes and experimental methods for producing products such as alcohol, beer, and carbonated soft drinks. Additionally, the course helps develop skills to connect theoretical knowledge with real-world production, calculation skills, data processing, and teamwork skills. | 1 (0,1) | Details
70. | Practical Dairy Product Production Technology | This course provides learners with the technological processes for production as well as methods for quality control of certain dairy products, and methods for quality control of raw fresh milk. Additionally, the course helps develop skills to connect

theoretical knowledge with solving real-world production problems. From this, students will be able to operate and supervise production equipment and address food hygiene and safety issues throughout the production of dairy products. | 1 (0,1) | Details

71. | Practical Vegetable Oil Production Technology and Fruit and Vegetable Processing | The "Practical Vegetable Oil Production Technology and Fruit and Vegetable Processing" course equips learners with the production process for vegetable oil and the processing procedures for fruits and vegetables. Additionally, the course helps develop skills to connect theoretical knowledge with real-world production in the field of vegetable oil production and fruit and vegetable processing; calculation skills, data processing, and teamwork skills. | 1 (0,1) | Details
72. | Food Engineering Project | The "Food Engineering Project" course equips learners with fundamental knowledge and skills to calculate and design mechanical fluid processes, heat transfer, and mass transfer equipment used in food technology, thereby providing specific orientations for learning, research, and career development. | 1 (0,1) | Details
73. | Food Product Development Project | The "Food Product Development Project (PTSPTP)" course equips learners with the ability to apply knowledge of food PTSP processes, food technology, market research, and consumer understanding to survey, analyze, screen, synthesize, plan, and execute food PTSP projects. Additionally, it helps students develop practical approach skills, analysis, argumentation, and problem-solving skills for selecting research, testing, and food production technology (CNSX) options in food PTSP projects. | 2 (0,2) | Details
74. | Field Observation | This course equips learners with the ability to apply and analyze knowledge in food technology and food safety to solve problems at food production facilities, as well as fostering practical skills such as observation, note-taking, synthesis, reporting; cultivating discipline, honesty, responsibility, proactive exploration; critical thinking skills, independent work, and teamwork, as well as applying learned knowledge to compare with real-world knowledge. | 1 (0,1) | Details
75. | Graduation Internship | The "Graduation Internship" course equips learners with an overview of the reality of production facilities, raw materials, and production processes for food products. This course also contributes to fostering skills in observation, note-taking, synthesis, and reporting, cultivating self-reliance, passion for the profession, exploration, applying learned knowledge and comparing it with real-world knowledge. Additionally, this course helps students develop the skill of adhering to prescribed conduct at food production facilities. | 2 (0,2) | Details IV. Advanced and Specialized Major Knowledge (Stage 2 – Engineer's Degree) | | | | Compulsory Advanced and Specialized Major Knowledge | | | |

76. | Alcohol, Beer, Soft Drink Production Technology | This module provides learners with basic knowledge on wine, beer, soft drinks, raw materials and products as well as technological processes for producing wine, beer, soft drinks. | 2 (2,0) | Details
77. | Dairy Processing Technology | This module provides learners with basic knowledge on raw materials, raw material changes during production and preservation as well as technological processes for producing dairy products in industry. In addition, the module also introduces general methods for checking raw material and product quality indicators as well as CIP cleaning methods. | 2 (2,0) | Details
78. | Fruit and Vegetable Processing Technology | The "Fruit and Vegetable Processing Technology" module equips learners with basic knowledge on raw materials, semi-finished products, finished products as well as technological processes for producing products from fruit and vegetable raw materials. | 2 (2,0) | Details
79. | Vegetable Oil Production Technology | This module provides learners with basic knowledge on food fats, raw materials and products as well as technological processes for producing vegetable oil (crude oil extraction process and oil refining process) and high-fat products (margarine, shortening, mayonnaise) in industry. In addition, the module also introduces general techniques to modify fat properties, including: blending technique, hydrogenation technique, fractionation technique, interesterification technique. | 2 (2,0) | Details
80. | Sugar, Bakery, Confectionery Production Technology | This module provides learners with basic knowledge on sugar, technological processes for producing sugar from sugarcane. In addition, the module also introduces the role of raw materials used in bakery and confectionery production, technological processes for producing bakery and confectionery, and calculations in sugar, bakery, and confectionery production technology. | 2 (2,0) | Details
81. | Meat, Egg, Seafood Processing Technology | The "Meat, Egg, Seafood Processing Technology" module equips learners with basic knowledge on raw materials; livestock slaughter techniques; technological processes for producing meat, egg, and aquatic products. | 2 (2,0) | Details
82. | Tea, Coffee, Cocoa Processing Technology | This module provides learners with basic knowledge on raw materials, products, related factors such as equipment, production conditions, technological methods in processing products from tea, coffee, cocoa raw materials on an industrial scale. In addition, the module also guides general necessary skills to implement, organize, and supervise the execution of a specific tea, coffee, cocoa production process. | 2 (2,0) | Details
83. | Staple Food Processing Technology | The "Staple Food Processing Technology" module equips learners with basic knowledge on raw materials,

products as well as technological processes for producing staple food products in industry. In addition, the module also introduces the theoretical basis of staple food processing processes. | 2 (2,0) | Details

84. | Sauce and Seasoning Production Technology | This module provides learners with basic knowledge on sauces, seasonings, raw materials and products as well as technological processes for producing sauces and seasonings. | 2 (2,0) | Details
85. | Practice in Organizing and Training Sensory Panels | The "Practice in Organizing and Training Sensory Panels" module equips learners with the following practical skills: panelist selection skills, sample and standard preparation skills, panel training skills, sensory data processing skills to evaluate panel capacity, group work skills, and reporting on the panel training process. | 1 (0,1) | Details
86. | Practice in Modern Techniques in Food Technology | This module provides learners with sequences of steps, parameters, influencing factors, changes in processes, knowledge on structure and function of each type of equipment, ability to calculate process-related parameters. At the same time, the module contributes to forming skills to link with theoretical knowledge, link to production reality and food quality control, calculation skills, result processing, and group work skills. | 1 (0,1) | Details
87. | Practice in Food Packaging Design and Testing | The "Practice in Food Packaging Design and Testing" module provides learners with knowledge on designing and testing food packaging quality on laboratory and actual scales; ability to calculate, measure, perform, and accurately control technological parameters in food packaging design and quality testing. At the same time, the module contributes to forming skills to link learned theoretical knowledge to solve real production problems. | 1 (0,1) | Details
88. | Practice in Biotechnology Application in Food Technology | This module provides learners with basic techniques of biotechnology application in food industry as well as methods for preparing media, propagation, strain control, enzyme activity determination, controlling technical parameters in fermentation processes. At the same time, the module contributes to forming skills to link with theoretical knowledge, link to production reality and food product quality control, calculation skills, result processing, and group work skills. | 1 (0,1) | Details
89. | Informatics Application in Food Technology | The "Informatics Application in Food Technology" module equips learners with basic knowledge and skills on applying computer software to solve some problems and tasks in food technology and food quality assurance. | 2 (2,0) | Details
90. | Food Factory Management | The "Management for Engineers" module equips learners with the role, tasks, functions of engineers in the new era, provides some necessary knowledge and tools for engineers to perform management activities. This module provides mathematical models for decision-making, an

important skill for engineers to solve production problems, meet social needs, and necessary factors in financial accounting management, production management, project management, human management. In addition, effective management tools are guided for application. | 2 (2,0) | Details

91. | Environmental Treatment in Food Industry | This module includes the following contents: characteristics of emission sources (exhaust gas, wastewater, solid waste, hazardous waste) in the food industry; treatment technologies for some common emission sources; discharge regulations and emission source management. After completing this module, students can assess pollution levels of emission types; propose waste treatment technology schemes; correctly apply environmental protection regulations in the food industry. Through the subject, students have a serious learning attitude, love the profession, and environmental protection awareness. | 2 (2,0) | Details
92. | Engineer Internship 1 | The "Engineer Internship 1" module equips learners with an overview of production facility reality, raw materials, production processes, food products, and quality assurance systems applied at the production facility. At the same time, the module contributes to forming observation, recording, synthesizing, reporting skills, training self-reliance, love for the profession, exploration, applying learned knowledge to compare with practical knowledge, and performing correctly the prescribed style at food production facilities. | 5 (0,5) | Details
93. | Engineer Internship 2 | The "Engineer Internship 2" module equips learners with an overview of production facility reality, quality assurance systems applied at the production facility. At the same time, the module contributes to forming synthesizing, reporting skills, applying learned knowledge to compare with practical knowledge, performing correctly the prescribed style at food production facilities. Proficient in individual and group work skills, evaluating work process effectiveness of individuals and groups, having organization and leadership skills for working groups, able to propose solutions to handle and resolve problems and incidents arising at the internship facility. | 3 (0,3) | Details
94. | Graduation Thesis | The "Graduation Thesis" module equips learners with the ability to apply specialized knowledge to identify, analyze, and solve problems in the field of food technology; the ability to conduct experiments in the field of food technology; the ability to calculate, analyze, and apply experimental results to practice to improve food production processes; the ability to design production processes and select food equipment that meets real-world needs; the ability to establish scientific and technical plans and projects, participate in operating and technical management for food production, processing, and business establishments; teamwork skills, searching and reading specialized foreign language documents, reporting, and presentation. | 14 (0,14) | Details

Elective Advanced and Specialized Major Knowledge (Choose at least 1 course) | | | |

95. | Food Safety Management | This course provides learners with fundamental knowledge about hazard identification and risk assessment according to HACCP principles, food safety management standards, and methods for developing prerequisite programs and hazard management plans. | 2 (2,0) | Details
96. | Food Supply Chain Management and Traceability | This course provides learners with fundamental knowledge about the components of the supply chain, the necessity, process, and tools for identifying & tracing food from farm to fork. | 2 (2,0) | Details
97. | Food Defense and Food Fraud | This course provides learners with fundamental knowledge about control systems for intentional hazards in the food chain, including food defense and food fraud. Additionally, the course introduces a general overview of skills for analyzing and developing a specific food defense plan, as well as skills for analyzing and establishing measures to prevent food fraud. | 2 (2,0) | Details
98. | Enterprise Management | The Enterprise Management course equips students with general knowledge about managing activities in organizations and enterprises; and skills in planning, building, organizing, decision-making, and leadership in organizations and enterprises. Learners are able to work in teams, through practical research activities, essays, and group discussions; they are able to orient well their careers and management specialization in organizations and enterprises. | 2 (2,0) | Details
99. | Food Marketing and Consumer Research | The "Food Marketing and Consumer Behavior" course provides learners with basic concepts of food marketing and methods for researching consumer behavior. The course is structured into 3 chapters. Chapter 1 presents basic concepts of marketing strategy, product positioning principles, branding, and application of marketing mix tools in the food industry. Next, Chapter 2 presents the principles of conducting some qualitative research methods for consumer behavior, such as: focus group interviews, laddering interviews, projective techniques. Finally, Chapter 3 introduces the principles of conducting some quantitative research methods for consumer behavior, such as: food choice questionnaires, consumer segmentation, and conjoint analysis. | 2 (2,0) | Details

100 .| Food Refrigeration Technology | The "Food Refrigeration Technology" course equips learners with fundamental knowledge about the nature and physical properties of refrigerants, coolants, phase equilibrium, cycles, and basic refrigeration processes related to thermorefrigeration, and the scientific basis of food chilling, freezing, and food preservation methods in cold storage. It covers cold and frozen food processing procedures and applications. | 2 (2,0) | Details