# PROGRESS AND TRAINING PROGRAM FOR THE FOOD QUALITY AND SAFETY ASSURANCE MAJOR (REGULAR UNDERGRADUATE PROGRAM)

*APPLICABLE FROM THE 2024 ENROLLMENT COHORT*

Progress and training program for the Food Quality and Safety Assurance major (regular undergraduate program) - applicable from the 2024 enrollment cohort.

| No. | Program and training schedule for the Food Quality Assurance and Safety major. | | Content |
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| 1 | Learning outcomes for the Food Quality Assurance and Safety training program. | | Detail |
| 2 | Overall training progress in the field of Quality Assurance and Food Safety. | Engineering level | Detail |
| | | Bachelor's degree | Detail |
| 3 | Training progress by semester for the Food Quality Assurance and Food Safety major. | Engineering level | Detail |
| | | Bachelor's degree | Detail |

| **List of modules in the Food Quality Assurance and Food Safety program** | | | | |
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| **No.** | **Course name** | **Course description** | **TC number** | **Course Outline** |
| **I. GENERAL EDUCATIONAL KNOWLEDGE** | | | **32** | |
| **Compulsory general education knowledge** | | | **30** | |
| 1 | Marxist-Leninist Philosophy | The course on Marxist-Leninist Philosophy belongs to the general knowledge block and is part of the group of courses on political theory. This course equips students with the basic knowledge of dialectical materialism and historical materialism; and the role of Marxist-Leninist philosophy. From this, students apply the knowledge learned to solve problems arising in their cognitive and practical activities; build a scientific worldview and methodology; and develop a conscious and | 3 (3,0) | Detail |

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| | | proactive approach to understanding and correctly implementing the Party's guidelines and policies, and the State's laws and regulations in the process of building socialism in Vietnam today. | | |
| 2 | Marxist-Leninist Political Economy | The course on Marxist-Leninist Political Economy is part of the general education curriculum and is a group of courses on political theory. This course equips students with fundamental knowledge about the formation and development of Marxist-Leninist political economy; commodity economics; the development of capitalism; the objective basis of policies for developing a socialist-oriented market economy; and the issues of industrialization, modernization, and international economic integration in Vietnam today. From this, students apply this knowledge in their cognitive and practical activities, forming an awareness of adhering to the Party's guidelines and policies with an objective, honest, and confident attitude towards the current policies for developing a socialist-oriented market economy in Vietnam. | 2 (2.0) | Detail |
| 3 | Scientific socialism | The course "Scientific Socialism" belongs to the general knowledge block and is part of a group of courses on political theory such as Marxist-Leninist Philosophy, History of the Communist Party of Vietnam, etc. This course equips students with fundamental knowledge about the origin and development of socialism; the historical mission of the working class; the basic characteristics and socio-political issues of socialism and the transitional period to socialism in Vietnam. From | 2 (2.0) | Detail |

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| | | this basic knowledge, students are able to apply it to examine and evaluate the socio-political issues of the country related to socialism and the path to socialism in Vietnam. It helps students develop a correct and objective political and ideological attitude towards the socialist path chosen by the Communist Party of Vietnam, and to have faith in the Party's guidelines and policies and the State's policies. | | |
| 4 | Ho Chi Minh Thought | The course "Ho Chi Minh Thought" belongs to the general knowledge block and is part of a group of courses on political theory such as Marxist-Leninist Philosophy, History of the Communist Party of Vietnam, etc. This course equips students with basic knowledge about the origins and stages of formation and development of Ho Chi Minh Thought; Ho Chi Minh Thought on fundamental issues of the Vietnamese revolution. From this, students are able to apply Ho Chi Minh Thought to practical work to proactively solve socio-economic problems according to Ho Chi Minh's thought and ethics in the current period. | 2 (2.0) | Detail |
| 5 | History of the Communist Party of Vietnam | The course "History of the Communist Party of Vietnam" belongs to the general knowledge block and is part of a group of courses on political theory such as Marxist-Leninist Philosophy, Ho Chi Minh Thought, etc. This course equips students with fundamental knowledge about the founding of the Communist Party of Vietnam, the Party's leadership in the resistance war against French colonialism and American imperialism, and the cause of national | 2 (2.0) | Detail |

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| | | construction and defense during the đổi mới (renovation) period. From this, students can apply the knowledge learned to solve problems arising in their cognitive and practical activities, as well as proactively address socio-economic issues in accordance with the Party's policies and guidelines in the current period. | | |
| 6 | English 1 | The "English 1" course, part of the General Education block in the undergraduate program, is the first course in a series of foreign language courses. This course aims to equip students with fundamental English knowledge, reaching level A1 according to the 6-level Foreign Language Proficiency Framework for Vietnam. The course content includes basic listening, speaking, reading, and writing skills, laying a solid foundation for language development in subsequent courses. This course also emphasizes the use of online learning tools to enhance students' self-study and research abilities, best preparing them for future academic and professional needs. | 2 (1,1) | Detail |
| 7 | English 2 | The course "English 2," part of the General Education curriculum, is a compulsory course in the undergraduate program. This course follows English 1 (14200101) and serves as a foundation for English 3 (14200103), creating a continuous and unified knowledge base to develop students' foreign language proficiency. The goal of the course is to raise students' foreign language proficiency to level A2 according to the 6-level foreign language proficiency framework for Vietnam, thereby | 2 (1,1) | Detail |

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| | | preparing them for international studies and work environments. The main content of the course includes improving and expanding listening, speaking, reading, and writing skills through practical activities, group discussions, and the use of online learning tools, helping students enhance their self-learning and research abilities. | | |
| 8 | English 3 | The "English 3" course, part of the General Education block in the undergraduate program, follows English 1 (14200101) and English 2 (14200102). The goal of this course is to improve students' English proficiency to B1 level according to the 6-level Foreign Language Proficiency Framework for Vietnam. The course content includes improving and developing listening, speaking, reading, and writing skills. In particular, this course emphasizes the use of English in practical communication situations, preparing students with the necessary skills to succeed in an international learning and working environment, as well as strengthening self-learning abilities through online learning platforms. | 2(1,1) | Detail |
| 9 | General Microbiology (Food Technology) | The course "General Microbiology (Food Technology)" is a compulsory course, part of the general education curriculum in several university programs such as Food Technology, Seafood Processing Technology, Food Quality Assurance and Safety, etc. The course focuses on providing students with general knowledge about various | 2 (2.0) | Detail |

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| | | types of microorganisms, their cellular structure and functions; microbial nutrition, growth, and control; and the classification and identification of microorganisms. In addition, the "General Microbiology" course introduces some basic techniques used in microbiological research, including commonly used microscopes; methods for isolating, measuring growth, and controlling microorganisms. Students also learn about the history and scope of microbiology, pathogenic microorganisms, and immunity. Furthermore, the "General Microbiology" course helps students become familiar with specialized English terminology in microbiology. | | |
| 10 | General Microbiology Experiment (Food Technology) | The course "General Microbiology Laboratory (CNTP) " is a compulsory course, part of the general education curriculum for several university programs such as Food Technology, Seafood Processing Technology, Food Quality Assurance and Safety, etc. The course focuses on providing students with fundamental knowledge of the principles of microbiology laboratory safety; the purpose of using and operating basic equipment in a microbiology laboratory. In addition, the course aims to initially train students in basic skills for working in a microbiology laboratory, such as preparing and using basic microbiology equipment and instruments; preparing some common microbial culture media; techniques for isolating and maintaining common microbial strains; some techniques for quantifying microbial density | 1 (0,1) | Detail |

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| | | directly and indirectly; and preparing slides and observing the morphology of microbial cells using a light microscope. At the same time, the course also begins to train students in reporting experimental work, recording and providing preliminary explanations of the differences between theory and practice (if any) when conducting experiments, as well as beginning to interpret experimental results. In addition, the course aims to train students in working independently and supporting each other within assigned groups to complete tasks assigned by the instructor. | | |
| 11 | General Chemistry 1 (Food Technology) | General Chemistry 1 (Food Technology) is part of the general education curriculum, aiming to equip students with fundamental chemistry knowledge as a prerequisite for subsequent courses within the academic field, major, and specialization in the training program. General Chemistry 1 (Food Technology) provides students with knowledge of basic concepts and laws in chemistry, the structure of matter (atomic structure, molecular structure, chemical bonds, etc.) based on modern quantum mechanics theory; and the properties and processes occurring in solution. | 2 (2.0) | Detail |
| 12 | General Chemistry Experiment 1 (Food Technology) | This course is part of the general education curriculum and follows General Chemistry 1. It covers safety regulations and basic laboratory techniques such as volume measurement, chemical weighing and mixing, and titration. The course helps students develop skills in using basic | 1 (0,1) | Detail |

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| | | laboratory equipment, creating a solid foundation for subsequent laboratory courses in the program. | | |
| 13 | Presentation skills | The "Presentation Skills" module is part of the general knowledge curriculum and serves as a foundation for other modules in the presentation skills training program. This module equips learners with the skills to build presentation structure and content suitable for different audiences, design PowerPoint presentations and prepare supporting materials, control language, handle and answer questions during presentations, and practice short presentations and correct mistakes made during presentations. | 2 (1,1) | Detail |
| 14 | Writing skills | This course is part of the compulsory general education curriculum. It provides students with knowledge and skills in writing academic essays, including the following: (1) basic steps in writing academic essays, how to organize, develop and arrange ideas; (2) paraphrasing, summarizing and citation in academic essays; (3) how to research materials from multiple sources; (4) using appropriate writing style in academic essays. In addition, the course creates opportunities and encourages students to have a positive learning attitude, self-study and cooperation, and to use diverse learning resources. | 2 (1,1) | Detail |
| 15 | Analysis (CNTP) | The "Calculus (CNTP)" course is part of the general education curriculum. This course provides students with a systematic understanding of limits, continuity, derivatives, and differentials of single- | 3 (3,0) | Detail |

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| | | variable real functions; antiderivatives, definite integrals, and improper integrals of single-variable functions; and illustrates the application of this knowledge to solving various engineering and technology problems. Furthermore, the course trains students to apply theory and software to solve basic problems, as well as those involving real-world data. Students also need to learn teamwork and approach problem-solving scientifically. | | |
| 16 | Physical Education 1 | Physical Education 1: part of the general knowledge block, is a compulsory course and the introductory course in the Physical Education program for students.<br>This module equips learners with fundamental knowledge about the history and development of several sports, their effects, technical principles, and training methods. Learners will practice and develop the correct basic techniques of sports such as volleyball, swimming, badminton, football, karate, and bodybuilding. They will develop self-awareness and a habit of daily physical exercise to contribute to maintaining good health in their studies, work, and other activities. | 2 (0.2) | Detail |
| 17 | Physical Education 2 | Physical Education 2: Part of the general education curriculum, this is a compulsory course and the second course in the Physical Education program for students.<br>This module equips learners with fundamental knowledge of the rules of competition in several sports, develops skills and methods for physical exercise and sports training, and fosters basic and | 2 (0.2) | Detail |

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| | | advanced specialized motor skills and abilities, as well as refereeing methods for elective sports. Learners will independently practice and hone the required basic techniques in sports such as volleyball, swimming, badminton, football, karate, and bodybuilding. Learners will develop self-awareness and form a habit of daily physical exercise to contribute to maintaining good health in their studies, work, and other activities. | | |
| 18 | Physical Education 3 | Physical Education 3: Part of the general education curriculum, this is a compulsory course and the final course in the Physical Education program for students.<br>Physical Education 3 module: equips students with basic knowledge of competition organization and refereeing methods, tactics in competition in several sports; the effects, principles, and methods of training, developing basic and advanced professional motor skills and abilities in elective sports. Learners will independently practice and train according to the requirements of basic and advanced techniques in sports such as: Volleyball, Swimming, Badminton, Football, Karatedo, and Bodybuilding. Learners will develop self-awareness and form a habit of daily physical exercise to contribute to ensuring health in their studies, work, and other activities. | 1 (1,0) | Detail |
| 19 | National Defense and Security Education 1 | The course on the Vietnamese Communist Party's national defense and security guidelines includes 11 chapters: Marxist-Leninist viewpoints and Ho Chi Minh's thought on war, the army, and national | 3 (3,0) | Detail |

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| | | defense; building national defense and security; people's war for national defense; building the people's armed forces; combining economic development with strengthening national defense and security in the new situation; the history of Vietnamese military art through the ages; an introduction to the current work of protecting Vietnam's maritime sovereignty and islands; building the militia and self-defense forces; protecting national security and the nationwide movement to protect national security. | | |
| 20 | National Defense and Security Education 2 | The content covers preventing and combating the "peaceful evolution" and subversive plots of hostile forces against the Vietnamese revolution; some issues related to ethnicity and religion; preventing and combating violations of environmental protection laws; violations of traffic safety laws; certain types of crimes against human honor and dignity; information security and preventing and combating violations of laws in cyberspace; non-traditional security and non-traditional security threats in Vietnam. | 2 (2.0) | Detail |
| 21 | National Defense and Security Education 3 | This module includes: Daily and weekly routines for living, studying, and working; formal discipline and internal order within the barracks; understanding of military branches; individual drill without weapons; general knowledge of military topography; prevention of enemy fire attacks using high-tech weapons; and combined military subjects. | 1 (0,1) | Detail |

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| 22 | National Defense and Security Education 4 | This module includes the following topics: AK submachine gun shooting techniques; Features, structure, and usage of several types of grenades - Grenade throwing lesson 1; Individual combat in offensive operations; Individual combat in defensive operations; and Individual guard duty (watching). | 2 (0.2) | Detail |
| **Elective general education courses (** *Choose at least 1 course)* | | | **2** | |
| 23 | General Law | The course "General Law" belongs to the general education curriculum and is part of the legal knowledge group. This course equips students with a system of theoretical and practical knowledge about the state and law, helping them develop legal thinking in their studies and research of foundational and core courses in the training program. The course studies the Vietnamese legal system, legal relations, legal violations and legal responsibility; the basic institutions of constitutional, administrative, labor, civil, marriage and family, and criminal law; and the basic contents of the Law on Anti-Corruption. In addition, the course helps students develop skills in applying legal regulations in their work and life, fostering a correct understanding and self-awareness in complying with legal regulations, and encouraging others to comply with legal regulations. | 2 (2.0) | Detail |
| 24 | Logic | The course "Logic" is part of the general education curriculum. It provides students with fundamental knowledge of basic laws (identity, non-contradiction, extremum, sufficient reason) and basic forms (concepts, judgments, inferences) of | 2 (2.0) | Detail |

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| | | thinking, aiming for a correct understanding of objective reality. In addition, the course equips students with skills in self-learning, research, knowledge discovery, and collaborative teamwork. | | |
| 25 | General Psychology | The General Psychology course, part of the general education curriculum, provides fundamental knowledge about human psychology. Based on this foundation, students apply their learned knowledge to develop critical thinking, communication skills, and creativity. They also cultivate positive personality traits, emotional well-being, willpower, habits, and behaviors. Furthermore, students can apply their knowledge to solve real-life problems, develop independent and effective teamwork skills, and acquire practical professional skills in business and management. | 2 (2.0) | Detail |
| 26 | Culinary culture | The course "Culinary Culture" is an elective in the general education curriculum, belonging to a group of courses covering food technology, tourism, nutrition, and gastronomy. The course provides students with the knowledge to distinguish between general issues of culinary culture, customs, and tastes, and to classify the customs and tastes of Asian and European/American countries. Simultaneously, this course supports students in applying content related to religious cuisine to food service, community nutrition, hospital kitchens, restaurants, and hotels. Furthermore, this course equips students with the skills to solve problems related to culinary culture and draw professional conclusions in specific situations. | 2(2,0) | Detail |

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| 27 | General Economics | Economics is a fundamental subject that studies how scarce resources are used to meet the unlimited needs of humanity. The course aims to solve optimization problems for individual consumers and producers, while also analyzing general issues of the national economy. Students will be provided with basic knowledge such as supply, demand, and market prices; consumer choice theory; production theory and production costs; measuring national output; aggregate demand and equilibrium output; money and banking; and national macroeconomic policies. | 2 (2.0) | Detail |
| **II. FUNDAMENTAL KNOWLEDGE OF THE FIELD** | | | **38** | |
| **Required foundational knowledge in the field.** | | | **36** | |
| 28 | English for Food Technology | The course "English for Food Technology" is part of the foundational knowledge block of the major, equipping learners with the skills to select specialized English materials; the skills to read and understand reference materials on food topics; and the skills to read and analyze data in the form of tables, graphs, and diagrams related to knowledge of food ingredients and processing from raw materials to finished food products. | 2 (1,1) | Detail |
| 29 | Food Chemistry | The course "Food Chemistry" is part of the foundational knowledge block of the major, and is a group of courses in food science (FO) such as Food Biochemistry, Food Microbiology, etc. This course equips students with basic knowledge about the roles, structures, and properties of compounds in food, including water, proteins, carbohydrates, | 2 (2.0) | Detail |

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| | | lipids, vitamins, and minerals; based on the chemical nature of these compounds, it explains the reactions occurring between the components in food and the technological features applied in food processing and preservation. | | |
| 30 | Food biochemistry | The course "Food Biochemistry" is part of the foundational knowledge block of the major, and is a group of courses in food science (FO) such as Food Chemistry, Food Microbiology, etc. This course equips students with knowledge about the transformation of compounds in food, including proteins, carbohydrates, and lipids, under the influence of physical, chemical, and enzymatic agents; and then applies this knowledge to control chemical reactions in food processing and preservation. | 2 (2.0) | Detail |
| 31 | Food chemistry and biochemistry experiments | The course "Food Chemistry and Biochemistry Experiments" is part of the foundational knowledge block of the major, and is a group of food science (FO) courses such as Food Chemistry, Food Biochemistry, etc. This course provides students with the skills to perform basic experiments (qualitative, quantitative, and property analysis) of common compounds in food, including proteins, enzymes, carbohydrates, lipids, and vitamins. This contributes to the development of skills in relating theoretical knowledge, calculation skills, result processing, and teamwork skills. | 1 (0,1) | Detail |
| 32 | Food microbiology | The course "Food Microbiology" is part of the foundational knowledge block of the major, | 2 (2.0) | Detail |

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| | | providing a basic understanding of the origin of food microorganisms, factors affecting the growth and survival of microorganisms in food, and methods of controlling and inhibiting microorganisms. From this foundation, the course focuses on three applications of microorganisms in food, including (1) spoilage microorganisms related to food preservation; (2) pathogenic microorganisms related to food safety; and (3) beneficial microorganisms that create fermented products. | | |
| 33 | Food microbiological analysis | The course "Food Microbiology Analysis" is part of the foundational knowledge block of the major, and is the final course in the group of microbiology courses such as General Microbiology, Food Microbiology, etc. This course equips students with basic knowledge in the field of microbiology analysis to analyze microbiological indicators, explain related issues for practical application in testing, understand equipment in microbiology laboratories; the ability to explain the steps involved; and the ability to identify and interpret analytical results. | 2 (2.0) | Detail |
| 34 | Food Microbiology Analysis Experiment 1 | The course "Food Microbiology Analysis Experiment 1" equips students with the skills to prepare media and chemicals, and to analyze pathogenic microorganisms in food using methods such as colony counting, MPN, and petrifilm. Simultaneously, the course contributes to developing skills in relating theoretical knowledge to practical food production and quality control, | 1 (0,1) | Detail |

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| | | calculation skills, result processing skills, and teamwork skills. | | |
| 35 | Food Microbiology Analysis Experiment 2* | The course "Food Microbiology Analysis Experiment 2" is part of the foundational knowledge block of the major. This course equips students with the skills to prepare media, chemicals, and biological reagents, and to analyze microbiological parameters using methods such as ELISA, PCR, and strip identification. Simultaneously, the course contributes to developing skills in relating theoretical knowledge to practical food production and quality control, calculation skills, result processing skills, and teamwork skills. | 1 (0,1) | Detail |
| 36 | Food Physicochemical Analysis 1 (CNTP) | The course "Physicochemical Analysis of Food 1" is part of the foundational knowledge block of the major, and is a course within the series of courses on food analysis methods (physicochemical, sensory, and microbiological analysis methods). This course equips students with basic knowledge of sampling, sample processing, calculation, and processing of analysis results using statistical methods and analytical methods such as volumetric titration, molecular absorption spectroscopy, atomic absorption spectroscopy, chromatography, etc. At the same time, the course provides students with several analytical procedures for common food parameters (principles, scope of application, procedures, and calculation of analysis results). | 3 (3,0) | Detail |
| 37 | Food physicochemical | The course "Food Physicochemical Analysis Experiments 1" is part of the foundational | 2 (0.2) | Detail |

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| | analysis experiment 1* | knowledge block of the major, following the theoretical course on the analysis of physicochemical parameters of food. This course reinforces students' basic knowledge of food physicochemical analysis. In addition, it equips students with the skills to test and evaluate the quality of food physicochemical parameters, and to draw conclusions about the quality of food produced and sold by businesses in specific situations. | | |
| 38 | Physicochemical analysis of food 2 | The course "Food Physicochemical Analysis 2" is part of the foundational knowledge block of the major, building upon and continuing the group of food analysis courses such as Food Physicochemical Analysis 1, Food Physicochemical Analysis Experiment 1, etc. This course equips students with fundamental and in-depth knowledge of modern physicochemical analysis methods commonly used in food analysis; characteristic quantities of the analytical process; and analytical equipment. In addition, this course also equips students with methods for analyzing and handling problems arising during food physicochemical analysis; and methods for selecting and applying analytical methods to analyze several food parameters. | 2 (2.0) | Detail |
| 39 | Food physicochemical analysis experiment 2 | The course "Food Physicochemical Analysis Experiments 2" is part of the foundational knowledge block of the major, following the theoretical course on the analysis of physicochemical parameters of food 2. This course reinforces students' basic knowledge of food physicochemical analysis. In addition, it equips | 1 (0,1) | Detail |

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| | | students with the skills to test and evaluate the quality of food physicochemical parameters, and to draw conclusions about the quality of food produced and sold by businesses in specific situations. | | |
| 40 | Food safety and hygiene | The "Food Hygiene and Safety" course, part of the foundational knowledge block of the major, is the introductory course in the group of food safety (FS) courses such as Food Law, HACCP, etc. This course equips students with basic knowledge about biological, chemical, and physical hazards in food; the impact of soil, water, and air pollution on food safety and hygiene; basic conditions and methods for ensuring food safety and hygiene; and relevant legal documents concerning food safety and hygiene conditions for food production and business units. In addition, this course also equips students with the skills to draw professional conclusions when applying current legal regulations to assess the conformity of food safety and hygiene conditions of food production and business units in specific situations. | 2 (2.0) | Detail |
| 41 | Food Toxicology | The course "Food Toxicology" is a compulsory foundational course in the major, belonging to a group of courses related to food safety (FS) such as Food Microbiology, Food Hygiene and Safety, etc. This course provides students with general concepts of food toxicology, general knowledge about the mechanisms of absorption, distribution, and excretion of toxins after they are introduced into the human body, the origin and agents that form food toxins (toxins of biological origin, chemical agents, | 2 (2.0) | Detail |

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| | | and physical agents). In addition, this course also equips students with knowledge about food allergies, including an overview of food allergies, the mechanisms causing food allergies, and some measures to manage and reduce food poisoning and food allergies. | | |
| 42 | Introduction to Food Technology | The course "Introduction to Food Technology" belongs to the foundational knowledge group of the food engineering (FE) course. The goal of the course is to provide students with basic information about the food technology industry, the job positions they can take on after completing the program, and to foster passion and interest in food technology through activities such as producing food products in specialized laboratories. Through this, students will be equipped with knowledge about the industrial scale of food production/processing; how to operate and use various equipment and tools for food production/processing at the laboratory scale; and skills in collaboration, organization, and teamwork. | 1 (0,1) | Detail |
| 43 | Food ingredients and preservation | The course "Food Ingredients and Preservation" is a compulsory foundational course in the major, belonging to the group of knowledge related to food preservation and processing technologies such as Post-Harvest Technology, Food Processing Technology, etc. This course provides students with basic knowledge about food ingredients and their characteristics, classification and identification of different types/groups of food ingredients; chemical composition and physiological and biochemical | 2 (2.0) | Detail |

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| | | changes of food ingredients, the causes of these changes, and from there, selecting and applying technological methods and equipment in the preservation process to minimize changes in ingredients and food. | | |
| 44 | Food additives | The course "Food Additives" is part of the foundational knowledge block of the major, belonging to the technology group and closely related to the courses on food processing and production technology. This course provides students with a general overview of commonly used food additives, including their properties, toxicity, functions, technological roles, and legal issues. Students will be able to apply the effectiveness and safety regulations of food additives in food processing, production, and product development to meet food quality and safety requirements. | 2 (2.0) | Detail |
| 45 | Food processing machines and equipment | This course is part of the foundational knowledge block of the major. It equips students with basic knowledge about the structure and operating principles (equipment for transporting, separating, shredding, washing, mixing, filling, and metering, etc.), as well as the advantages and disadvantages of machines and equipment used in food processing. In addition, the course helps students develop the ability to calculate and select machines and equipment for food production lines. | 3 (3,0) | Detail |
| 46 | Probability and statistics in manufacturing, | The course "Probability and Statistics in Production, Technology, and Engineering" is a compulsory foundational course in the field, following the | 3 (2,1) | Detail |

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| | technology, and engineering (CNTP) | Calculus course. This course provides fundamental knowledge of probability and statistics: events and probability; random variables, probability distribution laws of random variables; population and sample, descriptive statistics; statistical estimation and hypothesis testing of population parameters; analysis of variance and correlation regression. In addition, the course trains students in computational skills, develops logical thinking, and connects theoretical knowledge with practical applications. | | |
| **Elective foundational knowledge courses** (Choose at least 1 course) | | | **2** | |
| 47 | Human nutrition | The course "Human Nutrition" is an elective in the foundational knowledge block of the major. This course equips students with basic knowledge about the composition of the human body; assessing individual health and the concept of energy balance; how food is converted into energy and the process of energy expenditure; and knowledge about the digestion, absorption, and metabolism of nutrients. The course covers different types of carbohydrates and their functions; the types and roles of lipids, the forms of cholesterol in the blood; the role of protein and the consequences of insufficient or excessive protein intake; electrolyte balance; and the role of micronutrients in health. This course provides students with the knowledge to recognize metabolic disorders and nutrition-related diseases. | 2 (2.0) | Detail |
| 48 | Dietary supplements | The "Functional Foods" course, part of the elective foundational knowledge block, is taken after | 2 (2.0) | Detail |

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| | | students have acquired knowledge of food chemistry, food biochemistry, and food microbiology. This course equips students with a comprehensive understanding of functional foods, including concepts and definitions; legal regulations on the production, business, and labeling of functional foods; groups of raw materials and active substances with beneficial biological properties and health benefits, and the application of these legal regulations; and the biological properties and benefits of raw materials for the production and business of functional foods that are beneficial and safe for health. | | |
| 49 | Post-harvest technology | The course "Post-Harvest Technology" is an elective in the core curriculum of the major, belonging to a group of subjects related to food preservation and processing technology, such as Food Processing Technology, Raw Materials and Food Preservation, etc. This course provides students with basic knowledge about the concept and role of post-harvest technology today; an overview of raw materials and characteristics of agricultural products after harvest, spoilage phenomena, causes of loss, handling methods and post-harvest preservation methods; analysis and handling of problems in post-harvest agricultural product preservation; selection and application of technological methods and equipment in the process of preserving agricultural food products. | 2 (2.0) | Detail |

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| 50 | Food fermentation technology | The course "Food Fermentation Technology" is part of the foundational knowledge block of the major, providing knowledge of basic fermentation processes including isolation and storage of microbial strains, propagation, and fermentation to obtain products. Combined with knowledge of fermentation equipment; process control; and techniques for separating and purifying post-fermentation products, the course equips students with the technological foundation for developing fermented food products from raw materials to finished products, with a focus on industrial scale. | 2 (2.0) | Detail |
| **III. MAJOR KNOWLEDGE** (Stage 1 – Bachelor's Degree) | | | **51** | |
| **Required major knowledge** | | | **42** | |
| 51 | Food processing technology* | The course "Food Processing Technology" belongs to the specialized knowledge block and is part of the group of courses on food processing technology (FE), such as Introduction to Food Technology, Food Engineering, etc. This course equips students with fundamental knowledge about the scientific basis, purpose, and transformation of raw materials and semi-finished products in food production processes; developing technological processes for a food product; calculating raw materials and selecting appropriate equipment in the production of various food products. In addition, this course also provides students with food technology knowledge to analyze, solve problems, and propose solutions in specific situations. | 3 (3,0) | Detail |

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| 52 | Food Processing Technology Practice | The course "Food Processing Technology Practice" belongs to the specialized knowledge block and is part of a group of courses on food processing technology (FE), such as Introduction to Food Technology, Food Technology Practice, Food Packaging Design and Inspection Practice (FE), etc. This course equips learners with the skills to perform several processes such as sorting, cleaning, grinding, extraction, concentration, drying, homogenization, hydrolysis, mixing, pasteurization, sterilization, etc., in the processing of dried guava, herbal tea, and corn milk. At the same time, the course contributes to the development of skills in relating theoretical knowledge, calculation skills, result analysis skills, and teamwork skills. | 1 (0,1) | Detail |
| 53 | Food packaging technology | The Food Packaging Technology course is a compulsory specialized subject, providing students with fundamental knowledge about food packaging, the advantages and disadvantages of different types of packaging, packaging materials, technological processes, and quality management measures in the production of food packaging, as well as the applications of various types of packaging in food processing technology. | 2 (2.0) | Detail |
| 54 | Practice designing and testing food packaging. | The course "Practical Food Packaging Design and Testing" is a compulsory specialized course that provides students with knowledge of food packaging design and quality control at both laboratory and practical levels; the ability to accurately calculate, measure, implement, and control technological parameters in food packaging | 1 (0,1) | Detail |

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| | | design and quality control. Simultaneously, the course contributes to developing the skills to apply learned theoretical knowledge to solve problems in real-world production. | | |
| 55 | Food laws and standards* | The course "Food Law and Standards" is the second in a series of courses on food quality and safety assurance (Food Hygiene and Safety, Food Law and Standards, Hazard Analysis and Critical Control Points (HACCP) system, etc.) belonging to the specialized knowledge area. This course provides learners with the structure of Vietnam's food safety legal system, regulations within the food safety law, decrees, circulars, standards, and technical specifications in the field of food safety, quality management, and labeling in Vietnam, as well as in some of Vietnam's main export markets such as the EU and the US. | 2 (1,1) | Detail |
| 56 | Ensuring food quality | The course "Food Quality Assurance" belongs to the specialized and in-depth knowledge block of the major. This is a compulsory course for students. Prior knowledge of subjects such as probability and statistics, experimental design, and data processing (0101100058) is required before taking this course. Through this course, students will be equipped with concepts of quality management and processes that help achieve high quality and safety in production. The knowledge acquired includes the ISO 9000 management system; and knowledge and skills in using basic quality management tools in food quality and safety control. | 2 (1,1) | Detail |

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| 57 | Quality management system | The course "Quality Management Systems" belongs to the quality assurance group of courses and is a follow-up course to Food Quality Assurance. This course provides learners with in-depth knowledge of quality management systems according to ISO 9001, including quality terminology, quality management principles, and specific requirements of a quality management system. | 2 (1,1) | Detail |
| 58 | Hazard Analysis and Critical Control Points (HACCP) system* | The course "Hazard Analysis and Critical Control Points (HACCP) System" is the third course in a series on food quality and safety assurance (Food Hygiene and Safety, Food Law and Standards, Hazard Analysis and Critical Control Points (HACCP) System...). This course provides learners with fundamental knowledge on hazard identification, risk assessment, and food safety management according to the 12 steps and 7 principles of HACCP Codex, as well as the requirements for the Prerequisite Program (PRP) for food processing plants. | 2 (1,1) | Detail |
| 59 | Food safety management system | The course "Food Safety Management Systems" is the final course in a series on food quality and safety assurance (Food Hygiene and Safety, Food Law and Standards, Hazard Analysis and Critical Control Points (HACCP) systems, etc.). This course provides learners with in-depth knowledge of modern food safety management systems, according to international standards such as the BRCGS global food safety standard, the ISO 22000 international standard for food safety management systems, and | 2 (1,1) | Detail |

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| | | the FSSC 22000 certification mechanism. It also introduces GFSI and its accredited standards. | | |
| 60 | Good Agricultural Practices (GAP) | The Good Agricultural Practice (GAP) course is a compulsory specialized course that equips students with fundamental knowledge of Good Agricultural Practices; the requirements for Good Agricultural Practices according to VietGAP and GlobalGAP; and methods for developing, applying, and evaluating GAP processes. In addition, this course also equips students with the necessary skills to understand, analyze, systematize requirements, and develop GAP processes for various applications. | 2 (2.0) | Detail |
| 61 | Food quality management project* | The course "Food Quality Management Project" is part of the specialized knowledge block. This course helps students apply fundamental and specialized knowledge to explain issues in the field of quality assurance; design, survey, and control food quality. In addition, the course provides general guidance on skills in identifying and assessing risks in production; developing quality assurance processes; planning, organizing, and monitoring food quality and safety assurance activities; selecting management and operational methods for food quality and safety assurance; and using tools for improving food quality. | 1 (0,1) | Detail |
| 62 | Food analysis project | The course "Food Analysis Project" is part of the specialized knowledge block of the Food Quality and Safety Assurance major. This course is within a series of subjects related to food analysis methods. The course equips students with fundamental and | 2 (0.2) | Detail |

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| | | specialized knowledge to explain issues in the field of food analysis; synthesize and select appropriate analytical procedures for products/raw materials; and apply and implement analytical procedures to ensure the reliability of measurement results. | | |
| 63 | Sensory evaluation of food | The course "Food Sensory Evaluation" is a compulsory subject within the specialized knowledge block. This course provides students with a general understanding of sensory evaluation, its role and application in the food industry; the psychological and physiological foundations of sensory function; sensory evaluation conditions; and principles of good practice. In addition, this course equips students with sensory evaluation methods, including discrimination tests, taste tests, descriptive analysis tests, and scoring methods according to Vietnamese standards. | 2 (2.0) | Detail |
| 64 | Practice sensory evaluation of food* | The course “Food Sensory Evaluation Practice” is a compulsory specialized knowledge block. This course equips learners with specialized skills and knowledge including: (1) organizing and conducting sensory tests, (2) processing data, and (3) interpreting experimental results based on the theoretical basis of the Food Sensory Evaluation course. In addition, the Food Sensory Evaluation Practice course also equips students with teamwork skills and how to write a sensory experiment report when solving a specific business problem. | 1 (0,1) | Detail |

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| 65 | Experimental design and data processing | The course "Experimental Design and Data Processing" is part of the specialized knowledge block, taken after the course "Probability and Statistics in Production, Technology, and Engineering (Food Technology)". It prepares students with foundational knowledge for the course "Applications of Informatics in Food Technology", equipping them with basic knowledge of experimental design, optimization, and data processing. This knowledge is applied to ensure quality and optimize food processing processes. | 3 (2,1) | Detail |
| 66 | Application of information technology in food technology | The course "Applications of Information Technology in Food Technology" is part of the specialized knowledge block. This course is taken after students have completed courses on Experimental Design and Data Processing, and Food Quality Assurance. Through this course, students are equipped with fundamental knowledge and skills in applying computer software to solve various problems and tasks in the fields of food technology and food quality assurance. | 2 (0.2) | Detail |
| 67 | Special topic: Innovation, creativity, and entrepreneurship in the food sector. | The specialized course on Innovation and Entrepreneurship in the Food Industry is designed to help students understand the fundamental knowledge, skills, and tools needed to conduct innovation and improvement activities in the food technology field. It also helps them understand how to launch an entrepreneurial venture based on their strengths and market needs. This course assists students interested in and aspiring to entrepreneurship to prepare themselves mentally | 1 (1,0) | Detail |

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| | | and acquire the necessary resources to proactively initiate innovative business ventures. | | |
| 68 | Internship | The "Internship" course is a compulsory specialized course, a field trip following foundational courses in food technology such as Food Hygiene and Safety, Food Processing Technology, and Food Processing Technology Practice. This course equips students with skills in observation, note-taking, identification, report writing, and presentation of issues related to food production and business processes, as well as food hygiene and safety. | 1 (0,1) | Detail |
| 69 | Graduation Internship (Quality Assurance)* | The Internship course, part of the specialized knowledge block, equips students with a general understanding of the practical aspects of food production, including raw materials, production processes, and food products. The course contributes to developing skills in observation, manipulation according to models, note-taking, synthesis, reporting, fostering independence, a love for the profession, a spirit of inquiry, the ability to apply learned knowledge to real-world situations, and the skills to adhere to established work procedures at the internship site. | 4 (0,4) | Detail |
| 70 | Graduation Thesis (Quality Assurance)* | The "Graduation Thesis" course, part of the specialized knowledge block, equips students with the ability to apply specialized knowledge to identify, analyze, and solve problems in the field of food quality assurance and technology; the ability to design and conduct experiments; the ability to calculate, analyze, and apply experimental results to | 6 (0,6) | Detail |

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| | | practice to improve production processes; the ability to identify the requirements of standards and legal requirements in food quality and safety management; the ability to establish scientific and technical plans and projects, participate in the operation and management of quality for food production, processing, and business establishments; and the skills of teamwork, searching for and reading specialized documents, reports, and presentations. | | |
| **Elective major knowledge** *(Select at least 3 groups of theoretical and practical modules.)* | | | **9** | |
| 71 | Technology for the production and quality control of alcoholic beverages, beer, and soft drinks. | The course "Production Technology and Quality Control of Wine, Beer, and Soft Drinks" is an elective course within the group of courses on food production and processing technology. This course equips students with fundamental knowledge of water treatment in the production of wine, beer, and soft drinks; the raw materials and products, as well as the production processes of wine, beer, and soft drinks. In addition, this course also provides students with basic knowledge of methods for controlling the quality of raw materials and finished products in soft drinks, beer, and wine. | 2 (2.0) | Detail |
| 72 | Practices in the production technology and quality control of alcoholic | The course "Practical Training in Production Technology and Quality Control of Wine, Beer, and Soft Drinks" is an elective specialized knowledge module that equips learners with practical skills in the production technology and quality control processes of wine, beer, and soft drinks; methods for | 1 (0,1) | Detail |

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| | beverages, beer, and soft drinks. | testing the quality of raw materials, semi-finished products, and finished products; and teamwork skills. | | |
| 73 | Milk processing and quality control technology | The course "Milk Processing Technology and Quality Control" is an elective specialization course that equips students with fundamental knowledge about raw materials, changes in raw materials during production and storage, production processes, and quality assurance of dairy products in the industry. In addition, the course provides an overview of methods for testing the quality indicators of raw materials and dairy products, as well as methods for cleaning production equipment on-site. | 2 (2.0) | Detail |
| 74 | Practices in processing technology and quality control of dairy products. | The course "Practical Training in Dairy Product Processing Technology and Quality Control" is an elective specialized course, following foundational courses in food technology such as Food Processing Technology and Practical Food Processing Technology. It runs concurrently with the theoretical course on Dairy Processing Technology and Quality Control. This course equips students with the skills to perform quality control testing of raw materials and dairy products, as well as to produce several dairy products. Simultaneously, the course contributes to the development of skills in relating theoretical knowledge, calculation, processing, and analyzing results, and teamwork skills. | 1 (0,1) | Detail |
| 75 | Technology for processing and quality control | The course "Processing Technology and Quality Control of Fruits and Vegetables" is an elective course in the specialized field, equipping students | 2 (2.0) | Detail |

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| | of fruits and vegetables | with fundamental knowledge about raw materials, semi-finished products, finished products, technological processes, and quality management measures in the production of fruit and vegetable products. This course includes the following content: General information about fruit and vegetable ingredients;Technology for the production and quality control of canned, dried, frozen, and pickled fruits and vegetables. | | |
| 76 | Practices in processing technology and quality control of fruits and vegetables. | The course "Practical Processing Technology and Quality Control of Fruits and Vegetables" is part of the specialized knowledge block and is an elective course within the group of practical courses on processing technology. This course equips students with the processes for processing and controlling the quality of raw materials and products such as canned, pickled, fried, and dried fruits and vegetables. Simultaneously, the course contributes to developing the skills to connect theoretical knowledge with practical production. This enables them to operate and monitor production equipment and address food safety and hygiene issues throughout the processing of fruit and vegetable products. | 1 (0,1) | Detail |
| 77 | Vegetable oil production and quality control technology | The course "Vegetable Oil Processing Technology and Quality Control" is an elective specialization course that equips students with fundamental knowledge about food fats, raw materials, semi-finished products, finished products, technological processes, and quality management measures in the production of vegetable oils and high-fat products. | 2 (2.0) | Detail |

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| 78 | Practices in vegetable oil production technology and quality control. | The course "Practical Technology in Vegetable Oil Production and Quality Control" is an elective specialization course that equips students with the processes of producing and controlling the quality of raw materials and finished vegetable oils, as well as high-fat products such as margarine and shortening. Simultaneously, the course contributes to developing the skills to connect theoretical knowledge with practical production. This enables students to operate and monitor production equipment and address food safety and hygiene issues throughout the production process of vegetable oils and high-fat products. | 1 (0,1) | Detail |
| 79 | Technology for the production and quality control of sugar, cakes, and candies. | The course "Production Technology and Quality Control of Sugar, Biscuits, and Candies" is part of the specialized knowledge block and is an elective course within the group of production technology courses. The main content of the course will equip students with knowledge about raw materials for sugar production, biscuit production, and candy production; the technological processes for sugar production, biscuit production, and candy production; and quality control measures during the production of sugar, biscuits, and candies. | 2 (2.0) | Detail |
| 80 | Practices in the production technology and quality control of sugar, cakes, and candies. | The course "Practical Training in Sugar, Confectionery, and Confectionery Production Technology and Quality Control" is an elective specialized course that follows the theoretical course on sugar, confectionery, and confectionery production technology and quality control. This course not only helps students consolidate their | 1 (0,1) | Detail |

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| | | knowledge of raw materials, technological processes, and quality control measures for sugar, confectionery, and confectionery, but also helps develop professional qualities, work discipline, and professional conduct skills. Furthermore, the course helps students hone their collaboration and teamwork skills effectively. | | |
| 81 | Meat and egg processing and quality control technology | The course "Meat and Egg Processing Technology and Quality Control" is an elective specialized course that equips students with fundamental knowledge about raw materials; production technology processes and methods for controlling the quality of raw materials and meat and egg products. | 2 (2.0) | Detail |
| 82 | Practices in meat and egg processing and quality control technologies. | The course "Practical Technology in Meat and Egg Processing and Quality Control" is an elective specialized course that equips students with practical skills in raw material quality control, production and quality control of canned products, sausages, etc., and related issues in production, as well as teamwork skills. | 1 (0,1) | Detail |
| 83 | Technology for processing and quality control of seafood products. | The course "Processing Technology and Quality Control of Seafood Products" is an elective course in the Food Quality and Safety Assurance major, belonging to the specialized knowledge block. This course equips students with knowledge about the characteristics, evaluation methods, classification, processing, receiving, and preservation of seafood raw materials; it outlines the processing technology flowchart and explains and presents the production | 2 (2.0) | Detail |

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| | | stages of the process for processing seafood products from shrimp, fish, squid, and octopus. Furthermore, this course trains students to apply their knowledge to analyze common production problems and propose solutions. It also develops and proposes processing procedures for seafood products from various raw materials that meet and are suitable for current processing technology requirements in seafood processing enterprises. The course covers current seafood product quality control systems. | | |
| 84 | Practices in processing technology and quality control of seafood products. | The course "Practical Processing Technology and Quality Control of Seafood Products" is an elective course within the specialized knowledge block. It is scheduled to be taken after the course "Processing Technology and Quality Control of Seafood Products" (0101102756). This course equips students with a systematic understanding of seafood processing technology, enabling them to apply this knowledge to the practical evaluation, collection, and production of seafood products such as shrimp, fish, squid, frozen seafood products, traditional seafood products, and methods for testing and evaluating the quality of seafood products. It trains students to work independently, creatively, in teams, take personal responsibility, self-learn, synthesize materials and information, and develop carefulness, discipline, and accuracy in practical operations. | 1 (0,1) | Detail |
| 85 | Technology for processing and quality control | The course "Processing Technology and Quality Control of Tea, Coffee, and Cocoa" is an elective specialized course. This course equips students with | 2 (2.0) | Detail |

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| | of tea, coffee, and cocoa. | fundamental knowledge about the characteristics of raw materials, semi-finished products, and finished products in the tea, coffee, and cocoa categories; influencing factors and related technical parameters in industrial-scale tea, coffee, and cocoa processing technology; and the necessary skills to design, organize, implement, monitor, and evaluate the implementation of a specific tea, coffee, and cocoa production process to ensure quality and food safety. | | |
| 86 | Practices in processing technology and quality control of tea, coffee, and cocoa. | The course "Practical Technology in Processing and Quality Control of Tea, Coffee, and Cocoa" is an elective specialized course. This course equips students with the knowledge and skills to implement production and quality control processes for bottled tea, roasted coffee beans, ground coffee, and chocolate. | 1 (0,1) | Detail |
| 87 | Food processing and quality control technology | The course "Food Processing Technology and Quality Control" is an elective specialization course. It equips students with fundamental knowledge about raw materials, semi-finished products, finished products, technological processes, and quality management measures in the production of food products. | 2 (2.0) | Detail |
| 88 | Food processing technology and quality control practices | The course "Practical Food Processing Technology and Quality Control" is an elective specialization course. It equips students with the processes for processing and controlling the quality of raw materials and finished products such as rice, cassava starch, noodles, dumplings, rice noodles, and bread. Simultaneously, the course helps develop the ability | 1 (0,1) | Detail |

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| | | to connect theoretical knowledge with practical production, enabling them to operate and monitor production equipment and maintain food safety and hygiene throughout the food processing process. | | |
| 89 | Technology for producing and controlling the quality of sauces and condiments. | The course "Production Technology and Quality Control of Sauces and Seasonings" is an elective course in the specialized knowledge block, part of a group of courses on food production and processing technology. This course equips students with fundamental knowledge about the raw materials and products, as well as the technological processes for producing various sauces and seasonings. Furthermore, it provides methods for controlling the quality of raw materials and finished sauces and seasonings. | 2 (2.0) | Detail |
| 90 | Practice in the technology of processing and quality control of sauces and condiments. | The course "Practical Training in Sauce and Condiment Production Technology and Quality Control" is an elective course in the specialized knowledge block, following the theoretical course on sauce and condiment production technology and quality control. This course will reinforce students' knowledge of raw materials, production processes, and quality control measures in the production of sauces and condiments. Simultaneously, the course will contribute to the development of effective collaboration and teamwork skills. | 1 (0,1) | Detail |
| **IV. SPECIALIZED IN-DEPTH KNOWLEDGE** *(Stage 2 – Engineering Degree)* | | | **30** | |
| **In-depth, specialized industry knowledge is required.** | | | **26** | |

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| 91 | Modern techniques in food analysis | The course "Modern Techniques in Food Analysis" belongs to the specialized knowledge block. This course builds upon and enhances the knowledge from the food analysis course within the same training program. It provides in-depth knowledge of the principles and equipment of modern analytical methods currently applied in the field of food analysis, such as molecular spectroscopy, atomic spectroscopy, liquid chromatography, gas chromatography, and mass spectrometry. Furthermore, the course provides knowledge of modern sample processing methods applied to food samples in micro-analysis. | 2 (2.0) | Detail |
| 92 | Food defense and food fraud | The course "Food Defense and Food Fraud" is a mandatory specialized knowledge module. This module equips students with fundamental knowledge about systems for controlling intentional hazards in the food chain, including food defense and food fraud. In addition, the module provides a general overview of skills in analyzing and developing a specific food defense plan, as well as skills in analyzing and establishing measures to prevent food fraud. | 2 (2.0) | Detail |
| 93 | Food supply chain management and traceability | The course "Supply Chain Management and Food Traceability" provides specialized, in-depth knowledge within the group of courses on food quality and safety assurance (Food Hygiene and Safety, Food Law and Standards, Hazard Analysis and Critical Control Points (HACCP) system, etc.). This course provides learners with fundamental knowledge about the components of the supply | 2 (2.0) | Detail |

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| | | chain, the necessity and processes, and tools for identifying and tracing food from farm to table according to current legal regulations on tracing and recalling potentially unsafe products. | | |
| 94 | Food quality and safety control in the service industry | The course "Food Quality and Safety Control in the Service Industry" is the final course in a series on food quality and safety assurance (Food Hygiene and Safety, Food Law and Standards, Hazard Analysis and Critical Control Points (HACCP) system, etc.). This course provides learners with specific knowledge on hazard identification, risk assessment, and food safety management according to the 7 HACCP Codex principles and prerequisite program requirements (PRP) for food-related service industries such as warehousing, transportation, kitchens, restaurants, and hotels. | 2 (2.0) | Detail |
| 95 | Food factory management | The "Food Factory Management" course is a mandatory, specialized knowledge module. This module equips students with the roles, responsibilities, and management functions of an engineer in a food factory. It provides the necessary knowledge and tools for engineers to manage production in food factories. The module also offers methods for managing key production indicators. Furthermore, it introduces several commonly used management software programs currently employed in food factories. | 2 (2.0) | Detail |
| 96 | Food marketing and consumer research | The course "Food Marketing and Consumer Research" belongs to a specialized knowledge block. This course provides students with | 2 (2.0) | Detail |

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| | | fundamental concepts of food marketing and consumer behavior research. In addition, it offers several qualitative and quantitative methods in consumer behavior research to help students apply their knowledge to practice. | | |
| 97 | Special topic on the shelf life of food | The specialized module on food shelf-life is part of a specific in-depth knowledge block that equips learners with knowledge about factors affecting the shelf-life of food products; methods for determining food shelf-life (direct and accelerated), and their application in product preservation, improvement, and new product development. | 1 (1,0) | Detail |
| 98 | Industrial hygiene topic | The industrial hygiene module is a specialized knowledge area that guides students on how to understand and implement industrial hygiene practices in a food production facility to ensure food safety and hygiene. | 1 (1,0) | Detail |
| 99 | Engineering Special Topics (EQ) | The "Engineering Specializations" course, part of a specialized in-depth knowledge block, provides students with up-to-date knowledge relevant to the development of the Food Quality and Safety Assurance industry, and meets the requirements of society and businesses. The course content will change annually. | 1 (1,0) | Detail |
| 100 | Engineering Project (Quality Assurance Project)* | The "Engineering Project" course belongs to the specialized knowledge block. This course equips students with in-depth knowledge and skills in the fields of food technology, quality management, and food safety. Specifically, students work in groups to establish a production process with appropriate | 3 (0,3) | Detail |

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| | | technical parameters, applying standards/regulations on quality management and food safety to a specific product. In addition, students will also practice and develop skills in evaluating, controlling, and improving production management as well as quality management and food safety. | | |
| 101 | Engineering Internship (Quality Assurance)* | The "Engineering Internship" module, part of a specialized in-depth knowledge block, equips students with a comprehensive understanding of the practical aspects of a production facility, including raw materials, production processes, food products, and the quality assurance systems employed at the internship site. Simultaneously, the module contributes to the development of observation skills, the ability to operate according to models, note-taking, synthesis, and reporting skills; fosters independence, a passion for the profession, a spirit of inquiry, the ability to apply learned knowledge to real-world situations, and the skills to adhere to established work procedures at the internship site. Furthermore, the module helps students practice management skills and problem-solving abilities within a specific production line or workshop. | 8 (0,8) | Detail |
| **Specialized field knowledge (elective):** *Choose a minimum of 2 courses.* | | | **4** | |
| 102 | Automation in food technology | The Automation in Food Technology course is part of the specialized knowledge block of the Food Quality and Safety Assurance major. This course provides foundational knowledge in building a | 2 (2.0) | Detail |

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| | | typical automatic control system, including the controlled object, controller, and measuring and monitoring devices. Mechanical control processes, heat exchange processes, hydraulic and pneumatic drive processes, and mass transfer processes are analyzed using an approach that incorporates current modern and advanced technologies. | | |
| 103 | Modern techniques in food processing | The course on Modern Food Processing Technology is a specialized subject that provides students with knowledge about new technologies that have been and are being applied in developing countries in the food technology industry, as well as new global trends in the food sector, the advantages and disadvantages of applied modern techniques, and related equipment. | 2 (2.0) | Detail |
| 104 | Environmental management in food technology | The course "Environmental Treatment in Food Technology" is an elective specialized course. This course provides students with knowledge about the characteristics of waste sources generated in the food industry, including air emissions, wastewater, solid waste, and hazardous waste; common waste treatment technologies from food production; and regulations on waste discharge and waste source management. Upon completion of this course, students will be able to classify and assess the level of pollution from various waste sources; correctly apply environmental protection regulations in the food industry; and explain and analyze how to select appropriate waste treatment technologies. Through this course, students will develop a serious attitude | 2 (2.0) | Detail |

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| | | towards learning, a love for their profession, and a strong awareness of environmental protection. | | |
| 105 | Establishing and evaluating a laboratory according to ISO 17025 | The course "Designing and Evaluating Laboratories According to ISO 17025" is part of the specialized knowledge block of the Food Quality and Safety Assurance field. This course is within a series of subjects related to quality management systems and food analysis. The course provides learners with an understanding of the ISO 17025 standard applied in ensuring test results from laboratories, and outlines the competency requirements for laboratories to achieve this standard, such as resource requirements and management system requirements. Furthermore, the course provides learners with knowledge related to the process of developing test method evaluation documentation, training, and evaluating the skills of testing personnel. | 2 (2.0) | Detail |
| 106 | Methods for analyzing and researching functional foods. | The course "Methods of Analyzing and Studying Functional Foods" belongs to a specialized knowledge block. This course provides students with knowledge on determining the activity of biological compounds, methods for analyzing functional food compounds, the biological activity of functional food compounds, and classifying functional food groups based on their composition and properties. | 2 (2.0) | Detail |
| 107 | Negotiation skills | The Negotiation Skills course, part of the specialized elective program in Food Quality Assurance and Safety, will provide students with general knowledge of negotiation, negotiation | 2 (2.0) | Detail |

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| | | organization, and negotiation techniques in business. It will analyze the influence of cultural factors on business negotiation, highlight key considerations when negotiating with foreign partners, and offer lessons learned from successful business negotiations.Students will learn how to analyze and apply negotiation tactics and strategies flexibly and scientifically. They will possess basic skills in interacting and negotiating with business partners and some business communication skills. This helps students enhance their teamwork skills in negotiations, develop critical thinking and communication abilities, and hone their negotiation techniques, thereby creating a solid foundation for them to independently research and develop their skills in the future. | | |
| 108 | Distribution channel management | The course "Distribution Channel Management" is part of the specialized knowledge block and is a compulsory course in marketing. Distribution channel management is an in-depth and indispensable subject for marketing majors. Distribution is a crucial part of business operations; it not only performs the function of distributing products but also helps businesses better satisfy customer needs through a series of activities carried out after production and gather information about the market and customers to adjust business policies accordingly. | 2 (2.0) | Detail |
| 109 | Business administration | The "Business Management" course is a specialized and in-depth knowledge module closely related to subjects in the business administration and | 2 (2.0) | Detail |

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| | | economics fields. The course equips students with general, fundamental knowledge, methodologies, and professional skills in managing activities within organizations and businesses. It also equips students with self-learning and teamwork skills through practical research activities and group essays. Upon completion, students will have the ability to make sound career choices; possess the skills to plan strategies, build management systems, organize operational structures, lead, manage, evaluate resources, and make decisions within organizations and businesses. | | |
| 110 | Efficient energy management and utilization | The course "Efficient Energy Management and Utilization" belongs to a specialized knowledge block. This course covers topics related to energy in production and daily life, assessing current energy consumption levels in Vietnam and globally, as well as forecasting future consumption. The course trains students in the skills to analyze, evaluate, and propose solutions related to the economical and efficient use of various forms of energy in different industries and sectors. | 2 (2.0) | Detail |