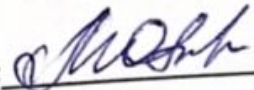


Ministry of Education and Science of Ukraine
Sumy National Agrarian University Faculty of
Food Technologies
Department of Technologies of Nutrition

Work program (syllabus) of the educational component
OK 18 TECHNOLOGIES OF GRAIN, BREAD, PASTA, CONFECTIONERY AND
FOOD CONCENTRATES
Mandatory

Specialty	181 "Food Technologies"
Educational program	"Food Technologies"
Level of higher education	Bachelor

Developer:  **Melnyk O.Yu., Ph.D., Head of the Department of Technologies of Nutrition**

Reviewed, approved and ratified on department of Technologies of nutrition (name of department)	protocol dated 02.06.2026. No. 21
	Manager departments <u></u> Oksana Melnyk (signature) (last name, initials)

Agreed:

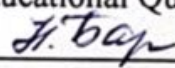
Educational program guarantor  **Olena KOSHEL**
(signature) (full name)

Dean of the Faculty,
where the educational program is implemented  **Nataliia BOLHOVA**
(signature) (full name)

Review of the work program (attached) provided by: Marenkova T.
(full name)

Savchenko M.Yu.
(full name)

Methodologist of the Department of Educational Quality,
licensing and accreditation


(signature)

(N. Bahanik)
(full name)

Registered in the electronic database: date: 24.06 2026

Information on reviewing the work program (syllabus):

Educational the year in which are introduced changes	Number of the appendix to the work program with a description of the changes	Changes reviewed and approved		
		Date and number minutes of the meeting departments	Head of the Department	Guarantor educational programs

		independently completing academic work, current and final control tasks, and achieving learning outcomes without violating established ethical principles. For violation of the rules of academic integrity, the student will be held liable in the following form: –academic fraud (using a phone while writing written papers) will result in resubmission of the paper; – cheating - from the first warning to the cancellation of work; – plagiarism will lead to the cancellation of the work.
16.	Link to the course in Moodle system	https://cdn.snau.edu.ua/moodle/course/view.php?id=1523
17.	Keywords	technology, grain, bread, bakery products, pasta, food concentrates, confectionery, chocolate, marmalade, caramel, cookies

2. LEARNING OUTCOMES BY EDUCATIONAL COMPONENT AND THEIR RELATIONSHIP WITH PROGRAM LEARNING OUTCOMES

Learning outcomes for EC: After studying the educational component, the student is expected to be able to:	Program learning outcomes that the EC aims to achieve (indicate the number according to the numbering given in the EC profile)							How is the DLO assessed?
	5	6	8	19	21	24	29	
DLO 1. Know main stages and operations of the technological process of food production		x						<i>Knowledge assessment by checking the processing of the reference notes of lectures and laboratory exercises</i> <i>Exam</i> <i>Computer-based testing</i>
DLO 2. Develop technological and equipment-technological schemes for the production of food products, make technological calculations			x	x		x	x	
DLO 3. Evaluate properties essential nutrients and food products	x	x			x		x	
DLO 4. Know the basic food quality indicators and develop draft regulatory documentation		x			x			
DLO 5. Analyze technological processes for the production of various products	x	x						
DLO 6. Apply the acquired knowledge in practical situations, increase production efficiency			x	x	x	x	x	
DLO 7. Be able to characterize technological processes of individual technologies and their impact on the quality of finished products		x	x		x		x	
DLO 8. Present the results of scientific and industrial tests in the form of scientific articles and conference abstracts				x	x	x		
DLO 9. Use modern methods to assess the quality of raw materials and control the quality and safety of the finished product			x			x	x	
DLO 10. Organize and conduct technological processes of food production, increase the environmental friendliness of production		x			x		x	

3. CONTENT OF THE EDUCATIONAL COMPONENT (COURSE PROGRAM)

Topic. List of issues to be addressed within the topic	Distribution within the total time budget, hours						Recommended reading
	Classroom work				Independent work		
	Luke		Lab. W.				
	Daily	Correspon- dence.	Daily	Correspon- dence.	Daily	Part- time/fast	
Content module 1. L. Topic 1. <i>Grain storage and processing technology..</i> 1. Cereal crops, structure and development. 2. Modes and methods of grain storage. Grain quality control during storage. IW. 1. Classification of granaries and requirements for them.	2	1	-	-	7	12	[1, 2, 5, 13, 15]
L. Topic 2. <i>Characteristics of grain crops (cereals, legumes, essential oil crops).</i> 1. General characteristics of grain mass and factors that influence its composition and properties. 2. Physical and thermophysical properties of grain mass. 3. Physiological and mass exchange processes occurring in grain mass during its storage. Medicine.Grain storage and processing technology. Methods for determining grain quality. IW.1. Microorganisms of grain mass and pests of grain reserves	2	-	6	-	7	12	[1, 2, 3, 5, 9, 13]
L. Topic 3. <i>Flour technology.</i> 1. Types of grinding, diagnostics of the technological process of simple and complex grinding. 2. Characteristics of the main stages of flour production. 3. Quality requirements, characteristics of technological properties of flour. 4. The influence of technological properties of grain on the quality and yield of flour. LW. Study of flour technology. Method for determining the quantity and quality of gluten in flour. IW. 1. Terms and conditions of storage of flour.	2	1	6	-	7	12	[2, 4, 5, 8, 9, 11, 12]

L. Topic 4.<i>Cereal production technology</i>.. 1. General information about cereal production. Classification of cereals. Characteristics of raw materials for cereal production. 2. Technological scheme of groats production. Characteristics of the main stages of groats production. 3. Requirements for the quality of cereals. Storage terms and conditions. LW. Study of cereal production technologies. Methods for determining the quality of cereals. IW. 1. Features of the technology of instant cereals. Control of cereals and by-products.	2	1	6	-	7	12	[1, 3, 4, 9, 10, 11, 14]
L. Topic 5.<i>Pasta technology</i>. 1. General information about pasta production. Classification of pasta products. 2. Schematic technological scheme of production. Diagnostics of the technological process of production. Requirements for the quality of finished products. Terms and conditions of storage. LW. Study of pasta technology. Influence of technological factors and improving additives on their quality. IW. 1. Storage conditions of pasta products and quality requirements. 2. Pasta defects.	4	1	6	2	8	12	[1, 2, 5, 6, 9, 11, 13, 14]
L. Topic 6.<i>Bread and bakery technology</i>. 1. General information about production. Classification of bakery products. 2. Raw materials used to produce bread. 3. Baking properties of flour. Requirements for water quality. 4. Additional types of raw materials. 5. Technological scheme of production of wheat bread varieties. Quality requirements. Storage terms and conditions. 6. Technological scheme for the production of rye-wheat bread varieties. Quality requirements. Storage terms and conditions. 7. Technological scheme of production of national varieties of bread. Quality requirements. Storage terms and conditions. LW. Study of the technology of bread and bakery products.	8	1	12	6	8	14	[1, 2, 3, 4, 9, 10, 11, 14]

IW. 1. Innovative technologies for the production of bakery products.							
L. Topic 7. <i>The current state of the confectionery industry in Ukraine.</i> 1. Characteristics of confectionery products. Raw materials for confectionery production. 2. Classification of confectionery products. IW. 1. Production of dietary confectionery products.	2	-	-	-	8	14	[1, 2, 5, 6, 8, 9, 11]
L. Topic 8. <i>Technology of flour confectionery products.</i> 1. Assortment and classification of flour confectionery products. 2. Cookie technology. 3. Gingerbread technology. 4. Quality requirements for flour confectionery products. LW. Study of the technology of flour confectionery products. IW. 1. Technology of cakes and pastries.	4	1	6	6	8	14	[1, 2, 6, 8, 9, 12, 13]
L. Topic 9. <i>Technology of sugar confectionery products.</i> 1. Classification of sugar confectionery products. 2. Technology of marmalade and pastille, marshmallow. 3. Chocolate technology. LW. Study of the technology of sugar confectionery products. IW. 1. Halva technology.	4	1	6	-	8	12	[1, 2, 3, 5, 8, 9, 12]
L. Topic 10. <i>Food concentrate technology.</i> 1. Definition of food concentrates and characteristics of raw materials for their production. 2. Classification and assortment of food concentrates. 3. Production of food concentrates. 4. Quality assessment of food concentrates. LW. Study of food concentrate technology. Assessment of the quality of food concentrates. IW. 1. Packaging, labeling, transportation and storage of food concentrates.	2	1	2	-	8	12	[1, 2, 3, 4, 5, 8, 11, 12, 13]
Total	30	8	44	16	76	126	

4. TEACHING AND LEARNING METHODS

DLO	Teaching methods(work that will be carried out by the teacher during classroom lessons, consultations)	Number of hours (days/weeks)	Teaching methods(what types of learning activities should the student perform independently)	Number of hours(days/weeks)
DLO 1	Lecture session (teaching lecture material, conversation, demonstration of graphic material)	5	Familiarization with lecture material, preparation of a basic lecture outline	7
DLO 2	Laboratory lesson (illustration of technological and equipment-technological maps, drawings)	5	Presentation of laboratory results, preparation of reports, development of technological and equipment-technological maps	7
DLO 3	Lecture session (teaching lecture material, conversation, demonstration of graphic material)	7	Familiarization with lecture material, preparation of a basic lecture outline	7
DLO 4	Lecture session (teaching lecture material, conversation, demonstration of graphic material)	7	Familiarization with lecture material, preparation of a basic lecture outline	8
DLO 5	Laboratory lesson (demonstration and practical implementation of technological processes)	7	Presentation of laboratory results, development of technological processes, preparation of reports	8
DLO 6	Practical work (demonstration and practical development of technological processes)	7	Presentation of laboratory results, development of technological processes, preparation of reports	8
DLO 7	Lecture session (teaching lecture material, conversation, demonstration of graphic material)	7	Familiarization with lecture material, preparation of a basic lecture outline	7
DLO 8	Practical and laboratory classes (consideration of technological situations with recommendations for solving technological production problems)	15	Presentation of laboratory results, decisions made and preparation of abstracts, preparation of reports with visual support	8
DLO 9	Practical work (consideration and development of modern methods of assessing and controlling the quality of raw materials)	7	Presentation of laboratory results, report preparation	8
DLO 10	Laboratory lesson (demonstration and practical implementation of technological processes)	7	Presentation of laboratory results, development of technological processes, preparation of reports	8

5. EVALUATION BY EDUCATIONAL COMPONENT

5.1. Diagnostic assessment (indicated as appropriate)

5.2. Summative assessment

5.2.1. To assess the expected learning outcomes, there are

No.	Summative assessment methods	Points / Weight in the overall score	Date of compilation
Fall semester			
	Module 1 (35 points)		
1.	Intermediate testing	10 points / 10%	
2.	Performance and defense of laboratory work (1LR - 5 points)	15 points / 15%	By the end of week 8
3.	Situational case task	10 points / 10%	
	Module 2 (35 points)		
4.	Intermediate testing	5 points / 5%	
5.	Performance and defense of laboratory work (1LR - 5 points)	20 points / 20%	By the end of week 15
6.	Situational case task	5 points / 5%	
7.	Individual task	5 points / 5%	
8.	Exam	30 points	By the end of week 16

5.2.2. Evaluation criteria

Full-time study

Component8	Unsatisfactorily	Satisfactorily	Good	Excellent9
1. Intermediate testing (multiple choice test)	The test includes 5, 10, 20 questions, each of which is worth 1 point.			
Performing and defending laboratory work	<2 points	3 points	4 points	5 points
	Task requirements not met	Answers to all questions are provided, but individual components of the answers are missing or insufficiently disclosed, there is no analysis of other approaches to the question.	The answers to all questions are given	All task requirements were met, creativity and thoughtfulness were demonstrated, and an original solution to the problem was proposed.
Task completion - situational case	<4 points	5-6 points	7-8 points	9-10 points
	Task requirements not met	Answers to all questions are provided, but individual components of the answers are missing or insufficiently disclosed, there is no analysis of other approaches to the question.	The answers to all questions are given	All task requirements were met, creativity and thoughtfulness were demonstrated, and an original solution to the problem was proposed.
Completion of an individual task on a given topic	<4 points	5-6 points	7-8 points	9-10 points
	Task requirements not met	Answers to all questions are	The answers to all questions are	All task requirements were

		provided, but individual components of the answers are missing or insufficiently disclosed, there is no analysis of other approaches to the question.	given	met, creativity and thoughtfulness were demonstrated, and an original solution to the problem was proposed.
Completion of an individual task on a given topic	<2 points Task requirements not met	3 points Answers to all questions are provided, but individual components of the answers are missing or insufficiently disclosed, there is no analysis of other approaches to the question.	4 points The answers to all questions are given	5 points All task requirements were met, creativity and thoughtfulness were demonstrated, and an original solution to the problem was proposed.
Exam	30 points			

5.3. Formative assessment

To assess current progress in learning and understand areas for further improvement,

Full-time study

No.	Elements of formative assessment	Date
Fall semester		
1.	Written knowledge test after studying topics 1-2	Week 7
2.	Written knowledge test after studying topics 3-4	14 week
3.	Oral questioning during each laboratory session	Within 1-14 weeks
4.	Feedback from the teacher during testing preparation	7, 14 weeks
5.	Feedback from the teacher during the task (situational case)	7.14 week
6.	Feedback from the teacher during individual assignment	14 week
7.	Feedback from the teacher during the discussion of exam tasks	14 week

6. LEARNING RESOURCES (LITERATURE)

Main sources

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5. Харченко, Є., Шаран, А., Янюк, Т., Супрун-Крестова, О. Інновації у зернових технологіях. — Київ : НУХТ, 2024. - 170 с.

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7. Технології зерна, хліба, макаронних, кондитерських виробів та харчоконцентратів: Конспект лекцій для студентів 2 курсу спеціальності 181 «Харчові технології» денної та заочної форм навчання, освітній ступень «Бакалавр» / уклад. О.Ю.Мельник, - Суми: Сумський національний аграрний університет, 2022р. – с. 137.

8. Технології зерна, хліба, макаронних, кондитерських виробів та харчоконцентратів: Лабораторний практикум для студентів 2 курсу спеціальності 181 «Харчові технології» денної та заочної форм навчання, освітній ступень «Бакалавр» / уклад. О.Ю. Мельник - Суми: Сумський національний аграрний університет, 2022р. – с. 44.

9. Загальні технології харчової промисловості. Навчальний посібник у 2 ч. Ч. 1 / уклад. Ф.В. Перцевой, В.І. Ладика, П.П. Пивоваров, О.О. Гринченко, Н.В. Камсуліна, О.Б. Дроменко, О.Ю. Мельник, О.В. Котляр, А.М. Діхтярь, С.Б. Омельченко, С.П. Боковець – Х. : СНАУ, 2021. – 317 с.

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17. Холобцева І. Технологія харчових концентратів : [електрон. посібник] / І. Холобцева ; техн. коледж ДДАЕУ ; рец. С. Миколенко ; Наук.-метод. центр вищої та фахової передвищої освіти. — Київ : НМЦ, 2023. — 235 с. : іл., табл. +18 відео ; доступ: <https://dspace.dsau.dp.ua/handle/123456789/8405>

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