

Ministry of Education and Science of Ukraine
Sumy National Agrarian University
Department of Food Technology and Safety

Syllabus of the educational component

**SC 3 Processing methods and technology
scientific information**

Specialty	181 "Food Technology"
Educational program	Food technology
Level of higher education	Third (educational and scientific)

Developer:

**Anna GELIKH Ph.D. , Associate Professor, Department
of Food Technology and Safety**
(surname, initials) (academic degree and title, position)

Reviewed and approved at the meeting of the Department of <u>Food Technology and Safety</u> (name of department)	protocol dated _____ .№ _____
	Manager departments _____ <u>Marina SAMILIK</u> (signature) (last name, initials)

Agreed:

Guarantor of the educational program _____ **Oksana MELNYK**
(signature) (full name)

Acting Dean of the Faculty where the educational program is implemented _____ **Natalia
BOLGOVA**
(signature) (full name)

The review of the work program was provided by _____ **Ph.D. , Assoc. Prof. Oksana
MELNYK**
(signature) (full name)

_____ **Doctor of Technical Sciences , Prof. Fedir PERTSEVOY**
(signature) (full name)

Methodologist of the Department of Educational Quality,
licensing and accreditation _____ (_____)
(signature) (full name)

Registered in the electronic database: date: _____ 2023.

Information about reviewing the work program (syllabus):

[illegible]

1. GENERAL INFORMATION ABOUT THE EDUCATIONAL COMPONENT

1.	Name EC	SC 3 Processing methods and technology scientific information		
2.	Faculty/department	Food Technology / Department of Food Technology and Safety		
3.	Status EC	Selective		
4.	Program/Specialty (programs) that include EC for (<i>filled in for mandatory EC</i>)	EP "Food Technologies", 181 Food Technologies		
5.	NQF level	Level 9		
6.	Semester and duration of study	4th semester, 15 weeks		
7.	Number of ECTS credits	5		
8.	Total hours and their distribution	Contact work (classes)		Independent work
		Lectures	Laboratory	
9.	Language of instruction	Ukrainian		
10.	Teacher/Educational Component Coordinator	Ph.D. , associate professor Gelikh A.O.		
11.1	Contact information	Oleksandrivna Helikh , Associate Professor of the Department of Technology and Safety, 317a, e - mail : anna . helikh @ snau . edu . ua		
11.	General description of the educational component	formation of higher education applicants knowledge, skills and abilities in collecting and processing scientific information.		
12.	Purpose of the educational component	-providing theoretical and practical knowledge to students on the acquisition of methodology and technology of scientific information processing; -determining the main issues and tasks of scientific processing; -providing practical knowledge of mathematical and statistical methods of processing scientific information.		
13.	Prerequisites for studying EC, connection with other educational components of EP	The educational component is the basis for the OP "Food Technologies": EC 2 Modern information technologies in scientific activities; EC 9 Methodology and organization of dissertation preparation and writing .		
14.	Academic Integrity Policy	It is not allowed to copy the conclusions of the laboratory work protocols from each other, in such a case the laboratory work will be considered unprotected and will require re-revision. In case of re-revision, the work will not be evaluated for the maximum score .		

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

Learning outcomes for OK: After studying the educational component, the student is expected to be able to...	Program learning outcomes that the OK aims to achieve			How is RND assessed?
	PRN 2	PRN 3	PRN 7	
DRN 1 Ability to formulate and test hypotheses; use appropriate evidence to substantiate conclusions, in particular, the results of theoretical analysis, experimental studies and mathematical and/or computer modeling, and available literature data.	X	X		Oral defense of laboratory work Final multiple-choice test (modular assessment, certification) Exam – multiple choice test
DRN 2 Ability to use modern search tools and technologies, processing and analysis of information on food technology issues, in particular, statistical methods for analyzing large amounts of data and/or complex structure, specialized databases and information systems.	X		X	Oral defense of laboratory work Final multiple-choice test (modular assessment, certification) Exam – multiple choice test
LIST OF COMPETENCES THAT WILL BE IMPROVED/ACQUIRED IN THE PROCESS OF NON-FORMAL EDUCATION				
CASE STUDY: how to solve complex problems in business and life				
General: the presence of an innovative perception of the subject, specified in three types: perception of one's own innovations and innovations or discoveries in general, the ability to see elements of the new in the relatively stable, and the ability to propose a fundamentally new solution to the problem. Professional: possession of a system of theoretical and practical knowledge, a set of skills; experience in demonstrating competence in real situations of the technological process; the ability to creatively solve professional problems, the level of awareness of the technologist of his knowledge, abilities, skills, and capabilities necessary for the qualified implementation of innovative activities.			Form for confirming learning results: A certificate of successful completion of training with the number of hours. The authenticity of the certificate can be verified by using the link on it.	

3. CONTENT OF THE EDUCATIONAL COMPONENT (COURSE PROGRAM)

Topic. List of issues to be addressed within the topic	Distribution within the overall time budget		Wednesday	Recommended reading ¹
	Classroom work			
	Luke	Lab . river.		
Module 1				
Lecture 1. SCIENTIFIC RESEARCH .				[1,2,3,4,5,6,9,11]
Laboratory lesson 1 . <i>Research methods and techniques. Part 1.</i>				[1,2,3,4,5,6,9,11]
Independent work 1. Procedure for conducting scientific research Research. Concept, functions and structure research programs 2. Sequence and stages of implementation scientific research				[1,2,3,4,5,6,9,11]
Lecture 2. RESEARCH TECHNOLOGY (part 1)				[1,2,3,4,5,6,9,11]
Laboratory lesson 2 . <i>Research methods and techniques. Part 2.</i>				[1,2,3,4,5,6,9,11]
Independent work 3. Economic justification of the choice scientific topic 4. Search, accumulation and processing scientific information				[1,2,3,4,5,6,9,11]
Lecture 3. RESEARCH TECHNOLOGY (part 2)				[1,2,3,4,5,6,9,11]
Laboratory lesson 3. <i>The essence and features of the methods of theoretical and experimental research. Part 1.</i>				[1,2,3,4,5,6,9,11]
Independent work 1. The essence of the experiment, general requirements for conducting it 2. Classification of experiments				[1,2,3,4,5,6,9,11]

¹ Specific source from the main or additionally recommended literature

Lecture occupation 4. LEVELS AND METHODS OF SCIENTIFIC RESEARCH (part 1)				[1,2,3,4,5,6,9,11]
Laboratory lesson 4. <i>The essence and features of theoretical and experimental methods research . Part 2.</i>				[1,2,3,4,5,6,9,11]
Independent work 1. Stages of preparing a scientific experiment 2. Classical planning methodology experimental research				[1,2,3,4,5,6,9,11]
Total for module 1				
Module 2				
Lecture class 5. LEVELS AND METHODS OF SCIENTIFIC RESEARCH (part 2)				[1,2,3,4,5,6,9,11]
Laboratory lesson 5. Methodology for obtaining and processing the information obtained. Part 1.				[1,2,3,4,5,6,9,11]
Independent work 1. General characteristics of processes scientific research. Technology of scientific activity 2. Structure of scientific research 3. Reporting on results scientific work				[1,2,3,4,5,6,9,11]
Lecture class 6. DESIGN, IMPLEMENTATION and evaluation results scientific research				[1,2,3,4,5,6,9,11]
Laboratory lesson 6. Methodology for obtaining and processing the information obtained. Part 2.				[1,2,3,4,5,6,9,11]
Independent work 1. Dissertation as a qualification research 2. Requirements for the dissertation 3. Technology of Master's degree preparation works				[1,2,3,4,5,6,9,11]

Non-formal education (Prometheus)				
CASE STUDY: how to solve complex problems in business and life Course program: Introduction: What the course is about and why Where to start solving a case Problem structuring: decision tree and the MECE principle Working with hypotheses Brainstorming Analysis tools How to conduct research and draw conclusions How to prioritize Developing recommendations				https :// prometheus . org . ua / prometheus - plus / case - study /
Total				

4. TEACHING AND LEARNING METHODS

DRN	Teaching methods (work that will be carried out by the teacher <u>during classroom lessons</u> , consultations)	Number of hours	Teaching methods (what types of learning activities should the student perform independently.)	Number of hours
DRN 1 Ability to formulate and test hypotheses; use appropriate evidence to substantiate conclusions, in particular, the results of theoretical analysis, experimental studies and mathematical and/or computer modeling, and available literature data.	Problem lectures (questions are raised regarding the material covered by the teacher, but the lecturer answers them himself, to focus students' attention on the main point) Presentations (demonstration of information on the topic of lectures)	4	Laboratory classes (completion of tasks in accordance with methodological instructions) Brainstorming while doing lab work Individual tasks (independent processing of the information proposed by the teacher)	4 32
DRN 2 Ability to use modern search tools and technologies,	Problem lectures (questions are raised regarding the material covered by the teacher, but the lecturer answers them himself, to focus students' attention on the main point) Presentations (demonstration of information on the topic of lectures)	4	Laboratory classes (completion of tasks in accordance with methodological instructions) Brainstorming while doing lab work Individual tasks (independent processing of the information proposed by the teacher)	6 40

5. EVALUATION BY EDUCATIONAL COMPONENT

5.1. Diagnostic assessment (indicated as needed)

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
1.	Laboratory work defense (1,2,3 laboratory work 6 points) total 18 Laboratory work 4 (7 points)	25 / 2 5%	within 5 days after class
2.	Completion of training on Prometheus	30 / 30 %	Up to 14 weeks
3.	Midterm testing (multiple choice test)	15/ 1 5%	Week 7
4.	Exam (multiple choice test)	30 points / 30%	17-18 weeks

5.2.2. Evaluation criteria

Component	Unsatisfactorily	Satisfactorily	Good	Perfectly
Oral defense of laboratory work (For the 1st laboratory work)	< 2 points	3-4	5 points	6-7 points
	Task requirements not met	Most requirements are met, but individual components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All task requirements met	Fulfilled all the requirements of the task, demonstrated creativity, thoughtfulness, proposed their own solution to the problem
Certification (multiple choice test)	The test includes 15 questions, each of which is worth 1 point.			
Midterm testing (multiple choice test)	The test includes 15 questions, each of which is worth 0.3 points.			
Exam (multiple choice test)	The test includes 30 questions, each of which is worth 1 point.			
Training on Prometheus	If you have a certificate – 30 points			

5.3. Formative assessment:

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

No.	Elements of formative assessment	Date
1	Oral survey after studying all topics, during laboratory classes	within 5 days after class
2	Feedback in the form of a discussion of the final testing	7, 15 weeks
3	Feedback in the form of a discussion of exam testing	Week 18
4	Feedback in the form of a discussion of the non-formal education course	after listening to the course

6. LEARNING RESOURCES (LITERATURE)

Recommended reading

Basic

1. Konversky A.E. Fundamentals of methodology and organization of scientific research: a teaching manual for students, cadets, graduate students and assistants / edited by A.E. Konversky . – K.: Center for Educational Literature, 2019. – 352 p.
2. Korbutyak V.I. Methodology of the systematic approach and scientific research: a textbook / V.I. Korbutyak . – Rivne: NUVGP, 2019. – 176 p.
3. Kremin V. Education and science in Ukraine - innovative aspects. Strategy. Implementation. Results. – Kyiv: Gramota, 2019. – 488p.
4. methodology and organization of scientific research: Textbook for students, cadets, postgraduates and associate professors / edited by A. E. Konversky . — Kyiv: Center for Educational Literature, 2020. — 352 p.
5. The procedure for passing documents for the defense of dissertations in specialized academic councils of the National University "Lviv Polytechnic": methodological instructions / Yu. Ya. Bobalo , Ya. T. Lutsyk, B. I. Stadnyk, I. O. Shyshkina. – Lviv: Lviv Polytechnic, 2019. – 141 p.
6. Romanchuk V.I. Fundamentals of scientific research: Textbook . - K.: Center for Educational Literature, 2019 .- 254 p. 12.
7. For those who pave their way into science: Textbook / M.G. Nakhodkin , A.G. Naumovets , S.M. Ryabchenko . – Kyiv: VPC 'Kyiv University', 2019. -239 p.
8. Fedorchenko Yu. On the phenomenon of dissertation and awarding scientific degrees: published 23.06.2019 // Electronic resource: <http://education-ua.org/ua/articles/1207-pro-fenomen-disertatsiji-ta-prisudzhennya-naukovikh-stupeniv>
9. Filipenko A.S. Fundamentals of Scientific Research: Lecture Notes.- K.: Akademvydav , 2019.- 208 p.
10. Tsekhmistrova G.S. Fundamentals of scientific research: Textbook . - K.: Publishing House "Slovo", 2019. - 240 p.

Information resources

- 11 . <https://cdn.snu.edu.ua/moodle/course/view.php?ID=4351>

