SUBJECT DESCRIPTION

1. Information on the study programme

1.1 The institution of higher education	**UNIVERSITY OF ORADEA**
1.2 Faculty	**FACULTY OF ENVIRONMENTAL PROTECTION**
1.3 Department	**FOOD PRODUCT ENGINEERING**
1.4 Field of study	**FOOD PRODUCT ENGINEERING**
1.5 Cycle of study	**BACHELOR**
1.6 Program of study/Qualification	**PROCESSING TECHNOLOGY OF AGRICULTURAL PRODUCTS / ENGINEER**

2. Information on the discipline

2.1 Name of discipline			INOCUITY OF FOOD PRODUCTS II				
2.2 Course holder			LECTURER PhD LUCIAN BARA				
2.3 Seminar/Laboratory/Project holder			LECTURER PhD LUCIAN BARA				
2.4 Year of study	**2**	2.5 Semester	**IV**	2.6 Type of evaluation	**EX**	2.7 Regimen of the subject	**C**

(C) Compulsory; (O) Optional; (E) Elective

3. Total estimate time (hours per semester of didactic activities)

3.1 Number of hours per week	**4**	out of which: 3.2 course	**2**	out of which 3.3 laboratory	**2**
3.4 Total hours from the curriculum	**56**	Of which: 3.5 course	**28**	out of which 3.6 laboratory	**28**
Time allotment					44
Study assisted by manual, course support, bibliography and notes					10
Additional documentation in the library/ on specialised electronic platforms and in the field					10
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					10
Tutorship					12
Examinations					2
Other activities.....					

3.7 Total hours of individual study	**44**
3.9 Total hours per semester	**100**
3.10 Number of credits	**4**

4. Prerequisites (where appropriate)

4.1 curriculum	Knowledge of Organic Chemistry, Biochemistry, Cell Biology.
4.2 competences	Manipulation of biological samples in safe conditions for the user.

5. Conditions (where appropriate)

5.1. related to course	The course room equipped with video projector; internet connection.
5.2. related to laboratory	Laboratory equipment: optical microscope, sample homogenizer, pH meter, UV lamp, related equipment (autoclave machine, oven, laminar flux), specific utensils (inoculation loops, pipettes).

6. Specific competences acquired

Professional competences	**C3.1** Establishing principles and methods of developing technical specifications based on acquired knowledge at the disciplines related to food equipment, industrial processes, transfer phenomena, operations and equipment. **C5.1** . Identification of specialized terminology on the quality, standards and food hygiene in order to collaborate and cooperate with the authorities responsible for food safety and quality. **C6.1** Identification of elementary concepts, theories, models and methods on the possibility of extending a production activity in the food industry.
Transversal competences	**CT1** Applying strategies of perseverance, rigor, efficiency and accountability in the work, punctuality and accountability for the results of personal activities, creativity, common sense, analytical and critical thinking, problem solving, etc., based on the rules and principles of professional ethics code values in the food sector. **CT2** Applying networking techniques within a team, enhancement and shaping of empathic capacities of interpersonal communication and ownership of some specific tasks in the group activity to treat / solve individual / group conflict, as well as the optimal management of time. **CT3** Efficient use of various ways and learning/ training techniques to acquire the information from electronic and bibliographic databases both in Romanian and in an international language, as well as to evaluate the need and usefulness of extrinsic and intrinsic motivation of continuing education.

7. Objectives of discipline (coming from the specific competences acquired)

7.1 General objective	Acquiring information about the morphology and physiology of the main groups of substances that can contaminate food products, the main relationships between the classes of toxic substances developing in food product, the knowledge of the laboratory techniques regarding the isolation and identification of toxins.
7.2 Specific objectives	Deepening knowledge of the presence and role of toxins in food; the acquisition of techniques necessary for the isolation and identification of toxic substances polluting food; deepening knowledge for organizing, endowing and performing toxicological examinations; acquiring legislation on the isolation and identification of toxins in food products.

8. Contents*

8.1 **Course**	Methods of teaching	No. of hours
Contamination of food products with dioxins	Interactive conversation; video presentation; oral exposure.	2
Contamination of agricultural products with pesticides	Interactive conversation; video presentation; oral exposure.	2
Contamination of agricultural products with nitrates	Interactive conversation; video presentation; oral exposure.	2
Contamination of agricultural products with nitrites	Interactive conversation; video presentation; oral exposure.	2
Contamination of agro-food products with polycyclic aromatic hydrocarbons	Interactive conversation; video presentation; oral exposure.	2
Contamination of agricultural products with metals	Interactive conversation; video presentation; oral	2

	exposure.	
Contamination of food products with radionuclides	Interactive conversation; video presentation; oral exposure.	2
Contamination of food products with nitrosamines	Interactive conversation; video presentation; oral exposure.	2
Contamination of food products with drugs	Interactive conversation; video presentation; oral exposure.	2
. Contamination of food products with mycotoxins	Interactive conversation; video presentation; oral exposure.	2
Contamination of food products with ciguateric toxins	Interactive conversation; video presentation; oral exposure.	2
Contamination of food products with microbial toxins	Interactive conversation; video presentation; oral exposure.	2
Toxicological risks of food packaging	Interactive conversation; video presentation; oral exposure.	2
Additives toxicity of for food products	Interactive conversation; video presentation; oral exposure.	2
Bibliography Bara Vasile, Toxiinfecții alimentare, Editura Universității din Oradea, 2010 Bara Vasile, Controlul sanitar-veterinar al alimentelor în unităţile agroalimentare, Editura Universităţii din Oradea, 2010 Dehelean Cristina, Toxicologie: noțiuni generale de toxicologie, Editura Mirton, 2008 Ionescu Daniela, Elemente de toxicologie a medicamentului- Curs pentru studenți, Editura Mirton, 2007 Oancea Simona, Toxicologie alimentară și elemente de toxicologia mediului, Editura Universității Lucian Blaga, 2006 Hura Carmen, 2005, Contaminarea chimică a alimentelor în România, 2005, Editura Cermi, Iaşi Alexa Ersilia, 2003, Contaminanţi în produse vegetale, Editura Eurobit Timişoara		
8.2 Seminary	-	-
8.3 **Laboratory**	Methods of teaching	No. of hours
Determination of pesticides residue in food products	Presentation, description, observation, demonstration, directed learning.	2
Determination of nitrite residue in food products	Presentation, description, observation, demonstration, directed learning.	2
Determination of nitrated residue in food products	Presentation, description, observation, demonstration, directed learning.	2
Determination of polycyclic aromatic hydrocarbons residue in food products	Presentation, description, observation, demonstration, directed learning.	2
Determination of antibiotics residue in food products	Presentation, description, observation, demonstration, directed learning.	2
Toxicological analysis of meat	Presentation, description,	2

	observation, demonstration, directed learning.	
Toxicological analysis of canned	Presentation, description, observation, demonstration, directed learning.	2
Toxicological analysis of eggs	Presentation, description, observation, demonstration, directed learning.	2
Toxicological analysis of milk	Presentation, description, observation, demonstration, directed learning.	2
Toxicological analysis of dairy products	Presentation, description, observation, demonstration, directed learning.	2
Toxicological analysis of honey bee	Presentation, description, observation, demonstration, directed learning.	2
Toxicological analysis of fruits	Presentation, description, observation, demonstration, directed learning.	2
Toxicological analysis of vegetables	Presentation, description, observation, demonstration, directed learning.	2
Toxicological analysis of cereals	Presentation, description, observation, demonstration, directed learning.	2

Bibliography

Bara Lucian Vasile, Îndrumător practic de laborator pentru uzul studenților, Editura Universității din Oradea, 2008
Bara Lucian Vasile, Ghid practic de toxicologie agroalimentară, Editura Universității din Oradea, 2010
Bara Vasile, Controlul sanitar-veterinar al alimentelor în unităţile agroalimentare, Editura Universităţii din Oradea, 2010
Bara Camelia, Tehnici şi examene de laborator în controlul alimentelor, Editura Universităţii din Oradea, 2005
Muselin Florin, Toxicologie analitică- Metode de laborator pentru colocviu, Lp., Editura Universității Timișoara, 2018
Hura Carmen, 2006, Ghid de laborator – Metode de analiză pentru produse alimentare, Editura Cermi, Iaşi
Oros, N.A., Diagnosticul de laborator în toxicologia veterinară-metode analitice, Editura Risoprint Cluj-Napoca, 2005
Drugă Mărioara, Ghid practic de toxicologie agroalimentară, Editura Mirton Timișoara, 2002

* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme

Knowledge of the impact of toxical substances on food and consumer health. Apply basic methods to solve specific issues or situations specific to the food industry.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the final grade
10.4 Course	- for grade 5 - 50% knowledge of the subject for grade 6 - 60% knowledge of the subject for grade 7 - 70%	Summative assessment - exam - written or oral test	70%

	knowledge of the Summative assessment - exam - written or oral test 70% subject for grade 8 - 80% knowledge of the subject for grade 9 - 90% knowledge of the subject for grade 10 - knowledge of the subject in proportion of 100% (the student proves the consultation of the presented bibliographic material).		
10.5 Seminary			
10.6 Laboratory	for grade 5 - the student answers 50% of the questions correctly for grade 6 - the student answers 60% of the questions correctly for grade 7 - the student answers 70% of the questions correctly for grade 8 - the student answers 80% of the questions correctly for grade 9 - the student answers 90% of the questions correctly for grade 10 - the student answers 100% of the questions correctly	Practical evaluation	30%
10.7 Project			
10.8 Minimum standard of performance			
Execution of specific operations in the sphere of production according to the job description by complying with the rules of professional ethics and values. Making a portfolio by identifying and describing professional roles within a subordinate team. Accomplishing a bibliographic study on the food theme.			

Date of completion

01.10.2023

Signature of course holder**

Lecturer PhD Lucian Bara
baralucian@yahoo.com

Signature of seminar laboratory/project holder **

Lecturer PhD Lucian Bara
baralucian@yahoo.com

Date of approval in the department

01.10.2023

Signature of the Head of Department

Lecturer eng.PhD AdrianTimar
atimar@uoradea.ro

Dean signature

Assoc.prof. PhD Cristina Maerescu

** - Name, first name, academic degree and contact details (e-mail, web page, etc)will be specified.
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