



No. _____ of _____

USAMV form 0702020106

SUBJECT OUTLINE

1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine Cluj Napoca
1.2. Faculty	Food Science and Technology
1.3. Department	Food products Engineering
1.4. Field of study	Food products Engineering
1.5. Cycle of study ¹	Bachelor
1.6. Specialization/ Study programme	Technology of Processing Agrifood Products (TPPA)
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	Principles and methods of food preservation 2							
2.2. Course coordinator	Șef lucr.dr. Anamaria Pop							
2.3. Seminar/ laboratory/ project coordinator	Asist. dr. Simona Maria Chiș							
2.4. Year of study	II	2.5. Semester	III	2.6. Type of evaluation	summative evaluation	2.7. Discipline status	Content ²	DD
							Compulsoriness ³	DI

3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	3	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	1
3.4. Total number of hours in the curriculum	42	Out of which: 3.5. lecture	28	3.6. seminar/laboratory	14
Distribution of the time allotted					hours
3.4.1. Study based on book, textbook, bibliography and notes					16
3.4.2. Additional documentation in the library, specialized electronic platforms and field					4
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					5
3.4.4. Tutorials					5
3.4.5. Examinations					3
3.4.6. Other activities					
3.7. Total hours of individual study	33				
3.8. Total hours per semester	75				
3.9. Number of credits ⁴	3				

4. Prerequisites (is applicable)

4.1. curriculum-related	Knowledge of: Food chemistry; Packaging, labeling and design in the food industry
4.2. skills-related	The student must have basic knowledge on Biochemistry and Principles and methods of food preservation 1

5. Conditions (if applicable)

5.1. for the lecture	<p>The course is interactive, students can ask questions regarding the content of the exposure. Academic discipline enforce Time start and end of the course. We do not allow any other activities during the lecture, mobile phones are closed.</p> <p><i>Spaces and facilities:</i> Lecture room equipped with: blackboard, projector and computer.</p> <p><i>Obligations of students:</i></p>
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	Compulsory attendance at least 50% of the total number of courses. (RC 40 of the Veterinary Medicine Cluj-Napoca Carta) We do not allow any other activities during the lecture, mobile phones to be closed.
5.2. for the seminar/ laboratory/ project	<p><i>Space and facilities:</i></p> <ul style="list-style-type: none"> • Laboratory analysis of plant products . <p><i>Obligations of students :</i></p> <ul style="list-style-type: none"> • Compliance with the rules and guidelines for the protection of laboratory work • Use personal protective equipment • Mandatory presence of at least 80 % of all practical work . It supports a maximum of 20 % unmotivated absence of practical activities provided full recovery of their fee before checking form • A student who has accumulated more than 40 % absences practical activities and / or more than 50 % absences course can not be present at the examination forms and a fee will restore discipline in the next academic year if the year passed on credits and points accumulated (RC 40 of the Charter Veterinary Medicine Cluj- Napoca) • The practical work each student will develop an individual activity with laboratory materials provided. • Each student will complete and present , on the basis of preset themes , a case study on the principle and method of preservation of a vegetable . Academic discipline is imposed for the duration of works .

6. Specific competences acquired

P r o f e s s i o n a l c o m p e t e n c e s	<p>C1.1. Describe and use the concepts, theories and methods that underlie the preservation of plant foods involved in the food industry</p> <p>C1.3. Apply the basic principles and methods of preservation of plant products, to solve engineering and technological problems, including those related to food safety</p> <p>C2.3. To apply the basic engineering principles and methods for solving technological problems in the agri-food chain.</p>
T r a n s v e r s a l c o m p e t	<p>CT2</p> <p>Applying interrelationship techniques within a team; amplifying and refining the empathic capacities of interpersonal communication and assuming specific attributions in carrying out the group activity in order to treat / resolve individual / group conflicts, as well as the optimal time management.</p>

<p>2.2. Determination of fruit firmness using analog penetrometer.</p> <p>3. Effect of preservation by freezing (slow freezing and fast freezing). Biological principle: PHYSIOANABIOSIS; CRIOANABIOSIS conservation procedure; Preservation method: FREEZING OF FRUIT AND VEGETABLES;</p> <p>3.1.Determination of cell juice losses from fruits and vegetables on thawing influenced by the freezing mode (slow freezing and fast freezing).</p> <p>3.2.Assessment of the quality of thawed fruits studied under sensory aspect</p> <p>4. The effect of drying preservation (different drying methods) on the quality of dry products. Biological principle: PHYSIOANABIOSIS; Conservation procedure XEROANABIOSIS; Preservation method: DEHYDRATION OF PLANT PRODUCTS;</p> <p>4.1. The influence of microwave drying on the sensory characteristics of green leafy vegetables</p> <p>4.2. Influence of drying temperature and time on mass loss and sensory characteristics of fruits and vegetables</p> <p>5. The effect of preservation by artificial acidification on the quality of preserved products. Biological principle: CHEMIOANABIOSIS; Conservation procedure ACIDOANABIOSIS; Preservation method: PRESERVATION WITH VINEGAR;</p> <p>5.1.Determination of the acetic acid content of vinegar and of semi-preserves in vinegar</p> <p>5.2.Determination of the level of NaCl by the Mohr method from semi-canned mushrooms in vinegar</p> <p>6. Theme of the paper: The effect of preservation by lactic fermentation on the quality of canned products. Biological principle: CHEMIOCENOANABIOSIS; Preservation procedure: ACIDOCENOANABIOSIS; Conservation method: CONSERVATION BY NATURAL ACIDIFICATION;</p> <p>6.1. Determination of lactic acid in cucumber semi-preserves obtained by lactic fermentation.</p> <p>7. Establishing the quality of cereals according to physical methods in order to maintain the quality of seeds in the long run</p> <p>7.1. Determination of the physical properties of cereals at reception for long-term storage</p> <p>7.2. Preparation of the reception form for long-term storage</p> <p>7.3. Determining long-term storage losses through technological calculations</p>		<p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p> <p>1 lab work (2 hours / work)</p>
<p><i>Bibliografie Obligatorie:</i></p> <ol style="list-style-type: none"> 1. C., Săhleanu, E., 2004, <i>Principiile conservării produselor alimentare</i>, Editura Agir, București; 2. Lungu, C., 2002, <i>Principii generale de conservare a produselor alimentare</i>, Universitatea „Dunărea de Jos” IDD, Galați. 		
<p><i>Bibliografie Facultativă:</i></p> <ol style="list-style-type: none"> 1. M. Shafiur Rahman, 2007, <i>Handbook of Food Preservation</i> Second Edition, ISBN-10: 1-57444-606-1 (alk. paper). http://www.crcpress.com 2. Roman Gheorghe Valentin, Matei Marcel Duda, Florin Imbrea, Gheorghe Matei, Adrian Vasile Timar, 2012, <i>Conditionarea si pastrarea produselor agricole</i>, Editura Universitară 		

9. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field

In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems teachers participate in conferences, scientific symposia and meetings and fairs which interacts with the private / prospective employers graduates. The content of the discipline is in accordance with what is practiced in other university centres in the country and abroad.

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Logical, correct and consistent application of the acquired notions	oral examination	60%
10.5. Seminar/Laboratory	Understanding the effects of preservation on the quality of the product obtained after keeping it fresh or preserved.	Colloquy	40%
10.6. Minimum performance standards			
Mastering the scientific information conveyed through lectures and practical work at an acceptable level.			

¹ Education levels- choose of the three options: Bachelor/* Master/Ph.D.

² Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).

^{3/} Discipline status (compulsoriness)- choose one of the options – **CD** (compulsory discipline) **OD** (optional discipline) **ED** (elective discipline).

⁴ One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

^{5/*} Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on
06.09.2021

Course coordinator
Lecturer PhD Anamaria Pop



Laboratory work/seminar coordinator
Asist. Dr. Simona Maria Chiş



Subject coordinator
Prof dr. Muste Sevastiţa



Approved by the
Department on
22.09.2021

Head of the Department
Prof dr. Muste Sevastiţa



Dean

Approved by the Faculty
Council on
28.09.2021

Prof dr. Mudura Elena

