UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____of _____ **USAMV form–CN-0701010112**

SUBJECT OUTLINE

1. Information on the programme

1.1. Higher education institution	**University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca**
1.2. Faculty	**Food Science and Technology**
1.3. Department	**Food Engineering**
1.4. Field of study	**Food Engineering**
1.5. Education level[1)]	**Bachelor**
1.6. Specialization/ Study programme	**Technology of agricultural products processing**
1.7. Form of education	**Full time**

2. Information on the discipline

2.1. Name of the discipline	**Principles and methods of food preservation 1**							
2.2. Course coordinator				**Assoc. Prof. Dr. habil. Cristina Anamaria Semeniuc**				
2.3. ~~Seminar~~/ laboratory/ ~~project~~ coordinator				**Eng. Dr. Maria-Ioana Socaciu**				
2.4. Year of study	**I**	2.5. Semester	**II**	2.6. Type of evaluation	**Summative**	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	4	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/ ~~project~~	14

Distribution of the time allotted	ore
3.4.1. Study based on book, textbook, bibliography, and notes	20
3.4.2. Additional documentation in the library, specialized electronic platforms, and field	20
3.4.3. Preparing ~~seminars~~/ laboratories/ ~~projects~~, ~~subjects~~, ~~reports~~, ~~portfolios~~, and ~~essays~~	10
3.4.4. Tutorials	-
3.4.5. Examinations	8
3.4.6. Other activities	-

3.7. Total hours of individual study	58
3.8. Total hours per semester	100
3.9. Number of credits[4]	4

4. Prerequisites (if applicable)

4.1. curriculum-related	Basic notions of food chemistry
4.2. skills-related	The student must have the necessary knowledge for proper handling of chemical reagents, glassware, utensils, and laboratory equipment

5. Conditions (if applicable)

5.1. for the lecture	Classroom, equipped with: blackboard, video projector, and computer In the case of carrying out online didactic activities, the teaching methods will be adapted
5.2. for the ~~seminar~~/ laboratory/ ~~project~~	Laboratory equipped with laboratory equipment, glassware, utensils, and chemicals In the case of carrying out online didactic activities, the teaching methods will be adapted

6. Specific competences acquired

Professional competences	C3.1. Description and use of concepts, theories, and basic methods regarding food products preservation C1.4. Application of principles and basic methods from food science in view to the preservation of food products
Transversal competences	CT1. Responsible execution of laboratory tests; analytical and critical thinking in interpreting results

7. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	To provide an overview of basic principles of food preservation as well as the main methods of preservation
7.2. Specific objectives	Learning fundamental principles of food spoilage and deterioration and their control methods Ability to assess the storage stability of food products Ability to apply food preservation principles in practice

8. Contents

8.1. LECTURE	Teaching methods	Notes
Food spoilage. Principles of food preservation	Participatory lecture, debate, exemplification	2 lectures
Factors influencing microbial activity		2 lectures
Food preservation by heating		2 lectures
Food preservation by freezing		2 lectures
Food preservation by dehydration		2 lectures
Food preservation by irradiation		2 lectures
Food preservation using chemicals and microorganisms		2 lectures

8.2. PRACTICAL WORK	Teaching methods	Notes
The effect of preservation by cold - Assessment of changes in organoleptic characteristics of meat depending on applied heat treatment (refrigeration, freezing) Sensory evaluation of meat	Presentation, explanation, demonstration, case study	1 laboratory work
The effect of preservation by cold - Appreciation of meat freshness depending on species and thermal status by determination of pH and ammonia		1 laboratory work
The effect of heat treatment - Assessment of animal origin fat stability at frying by Kreis reaction and determination of free acidity		1 laboratory work
The effect of preservation by heating - Control of medium- and high-pasteurization of milk (alkaline phosphatase test and peroxidase test)		1 laboratory work
The effect of preservation by dehydration - Assessment of solubility and scorched particle content in milk powder		1 laboratory work
The effect of preservation by acidification - Evaluation of yoghurt sensory characteristics. Appreciation of yoghurt freshness by determination of pH		1 laboratory work
The effect of preservation by salting - Determination of salt content in sausages		1 laboratory work

The effect of preservation using chemicals - Detection of some preservatives in milk		

Compulsory bibliography:

1. Semeniuc C.A. (2015). Principii și metode de conservare a produselor alimentare-Manual Didactic. Ed. AcademicPres, Cluj-Napoca;
2. Guș C. (2003). Conservarea alimentelor. Ed. Risoprint, Cluj-Napoca.

Optional bibliography:

1. Banu C., Vizireanu C., Lungu C. (1997). Principiile conservării alimentelor. Universitatea "Dunărea de Jos" din Galați.

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

In outlining the course content and practical work were considered recommendations of food industry employers.

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 coherent application of acquired notions	**Exam**	75%
10.5. ~~Seminar~~/ Laboratory	Ability to perform tests in a physicochemical testing laboratory Ability to analyse and interpret test results	**Test of verifying knowledge**	25%
10.6. Minimum performance standards			
Knowledge of fundamental principles of food spoilage and deterioration and their control methods Execution of a laboratory test and elaboration of a test report			

[1] Level of study- to be chosen one of the following - Bachelor/Post graduate/Doctoral
[2] Course regime (content) – for bachelor level it will be chosen one of the following - **DF** (fundamental subject), **DD** (subject in the domain), **DS** (specific subject), **DC** (complementary subject).
[3] Course regime (compulsory level) - to be chosen one of the following - **DI** (compulsory subject), **DO** (optional subject), **DFac** (facultative subject)
[4] One ECTS is equivalent with 25-30 de hours of study (didactical and individual study).

Filled in on
06.09.2021

Course coordinator
Assoc. Prof. Dr. habil. Cristina Anamaria Semeniuc

Laboratory work/ ~~seminars~~ coordinator
Eng. Dr. Maria-Ioana Socaciu

Course coordinator
Assoc. Prof. Dr. habil. Cristina Anamaria Semeniuc

Approved by the Department on
22.09.2021

Head of the Department
Prof. Sevastița Muste, PhD

Approved by the Faculty Council on
28.09.2021

Dean
Prof. Elena Mudura, PhD