

Calea Mănăștur 3-5, 400372, Cluj-Napoca Tel: 0264-596.384, Fax: 0264-593.792

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No.	from	
NO.	HOHI	

Form code USAMV CN 0701030110

COURSE DESCRIPTION

1. Information on the program

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 Engineering
1.4. Study field	Food Engineering
1.5. Level field ¹⁾	Bachelor
1.6. Specialization/ Study Program	Technology of Agricultural Products Processing/ TPPA
1.7. Teaching Form	Regular studies

2. Information on the discipline

•	Food additives and ingredients in food industry- technology and applications 2							
2.2. Course leader				Lecturer Salanță Liana				
2.3. Coordinator of practice lesson/laboratory				Lecturer Salanță Liana				
activity								
III	2.5. Semester	VI	2.6	. Type of		2.7. Course	Content ²	DD
			eva	aluation Summative		regime	Lavel of	DI
								DI
	ctice	ctice lesson/laborato	ctice lesson/laboratory	ctice lesson/laboratory III 2.5. Semester VI 2.6	Lecturer ctice lesson/laboratory Lecturer	Lecturer Salanță Liana ctice lesson/laboratory Lecturer Salanță Liana III 2.5. Semester VI 2.6. Type of	Lecturer Salanță Liana ctice lesson/laboratory Lecturer Salanță Liana III 2.5. Semester VI 2.6. Type of 2.7. Course	Lecturer Salanță Liana ctice lesson/laboratory Lecturer Salanță Liana III 2.5. Semester VI 2.6. Type of 2.7. Course Content²

3. Total estimated time (teaching hours/semester)

3.1. Number of hours/week – frequency form	4	Of which: 3.2. course	2	3.3. seminary/ laboratory/ project	2
3.4. Total hours in the curricula	56	Of which: 3.5.course	28	3.6.seminary/laboratory	28
Distribution of time					Hours
3.4.1. Study based on handbook, notes, bibliography					15
3.4.2. Extra documentation in the library, on specific electronic platforms and on field					14
3.4.3. Preparation of the seminaries/ laboratories / projecte, themes, papers, portfolies and essays					5
3.4.4.Tutorial					5
3.4.5.Examination					3
3.4.6. Other activities					2
2 / T. 4-1 l	4.4				

3.7. Total hours individual study	44		
3.8. Total hours per semester			
3.9. Number of ECTS ⁴	4		

4. Pre-conditions (if applicable)

4.1. of curriculum	Physical and colloidal chemistry, Biochemistry, Food chemistry
4.2. of competences	The student should have knowledge of chemical composition for raw materials and foodstuffs, and
	about the changes that occurred during processing.
	Identification, description and appropriate use of specific concepts of food science and food
	additives

5. Condition (if applicable)

5.1. of course development	Projector, ppt presentation
5.2. of seminary/laboratory/	Laboratory with appropriate analytical equipment, glassware, consumables
project development	Laboratory with appropriate analytical equipment, glassware, consumables



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6. Specific acquired competences

Professional competences	C4.1. Identification and application of the principles of legislation and regulations in the food field, in order to strictly observe the principles and regulations in force regarding food additives C1.3. Application of basic principles and methods in food science to solve engineering, technological and food safety problems related to the use of food additives
Transversal competences	CT1 Applying strategies of perseverance, rigor, efficiency and responsibility at work, punctuality and taking responsibility for the results of personal activity, creativity, common sense, analytical and critical thinking, problem solving, etc., based on the principles, norms and values of the code of ethics professional in the food field
Tra	CT3 Efficient use of various ways and techniques of learning - training for the acquisition of information from bibliographic and electronic databases both in Romanian and in an international language, as well as assessing the need and usefulness of extrinsic and intrinsic motivations of continuing education

7. Subject objectives (as a result of the specific acquired competences)

7.1. Subject general objectives	Rationalizing new trends in the use of additives in food products and in the analytical techniques used for their analysis		
	To acquire skills for the use of additives in food industry		
7.2. Specific objectives	To emphasize the necessity of food additives in food industry; present the main classes of additives and the most important representatives of them; follow the mechanism of action of additives such as highlighting allowable doses, the possible adverse effects on human health; studies on the food additives from the		
	following classes: preservatives, antioxidants, emulsifiers and hydrocolloids.		

8. Contents

8.1.COURSE	Methods of teaching	Observations
Number of hours – 28		
EMULSIFIED SYSTEMS	Lecture, heuristic	1 lecture
Formation of emulsions, the stabilization and	conversation, debate,	
destabilizing emulsions	algorithmic, case study,	
TECHNOLOGIES IN OBTAINING AND USING	directed observation	3 lectures
EMULSIFIERS SUBSTANCES		
Definition. Functions of emulsifiers; Representatives		
(mixtures of mono and diglycerides, sucroesters,		
propylene glycol esters with fatty acids, lecithin,	Lecture, heuristic	
sucroglycerides, sorbitol esters, ethoxylated esters, lactic	conversation, debate,	
and tartaric acid esters with fatty acids); The use of	algorithmic, case study,	
emulsifiers in bakery; The use of emulsifiers in pastry.	directed observation	
TECHNOLOGIES IN OBTAINING AND USING		4 lectures
HYDROCOLLOIDS.		
Generalities. The functional properties of hydrocolloids.		
Classification	Lecture, heuristic	
Representatives (Exudates from trees, gums from seeds,	conversation, debate,	
extracts from plants, extracts from algae, fermentation	algorithmic, case study	
gums, starch, cellulose derivatives, animal proteins,		
vegetable proteins, polydextrose)		
FLAVORS, FLAVORING AND FLAVOR		2 lectures
ENHANCERS	Lecture, heuristic	
Definition. The flavor of foodstuff; reactions with	conversation, debate,	
formation of flavour compounds in foodstuffs which	algorithmic, case study	
undergoes heat treatment; Flavoring agents and their		
classification (Natural flavoring, Synthetic flavoring,		



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Synthetic flavoring in mixtures, Thermal process		
flavouring; Flavor enhancers; Smoke flavouring)	Lecture, heuristic	
ACIDULANTS	conversation, debate,	1 lecture
Generalities; Representatives (lactic acid, citric acid,	algorithmic, case study	
tartaric acid, malic acid, fumaric acid, adipic acid,		
phosphoric acid)		
SWEETENERS		
Nonnutritive sweeteners; Nutritive sweeteners; Synthetic		1 lecture
sweeteners		
NATURAL AND SYNTHESIS DYES		2 lectures
Technologies in obtaining and using natural dyes		
(anthocyanins, betacins, carotenoids, porphyrin dyes,		
chalcon dyes, anthraquinone dyes, flavonic dyes)		
Advantages and disadvantages of using synthetic dyes		
(red. vellow, orange, blue, green, black, brown dyes)		

8.2. PRACTICAL WORK		
Number of hours – 28		
Emulsifiers – The highlighting of the emulsifiers actions	Conversation,	1 lecture
Emulsifiers – Extraction and identification of lecithin	argumentation, debate	1 lecture
from egg yolk		
Emulsifiers – qualitative verification to soy lecithin	Debate, algorithmic, case	1 lecture
Emulsifiers – obtaining of emulsified products	study, heuristic conversation	1 lecture
Hydrocolloids – Identification of starch from meat and		1 lecture
meat products	Learning by discovery,	
Hydrocolloids – Extraction of pectin from fruits	debate, case study,	1 lecture
Hydrocolloids – Determination of the degree of	conversation, argumentation	1 lecture
esterification of pectic substances		
Hydrocolloids – Use in the design of new foodstuffs		1 lecture
Colorants – Identification of synthetic dyes in vinegar		
Colorants - Obtaining the anthocyanins from red		1 lecture
cabbage		1 lecture
Colorants – Anthocyanins from red cabbage- acid-base		1 lecture
indicators		
Colorants – Methods of extraction of dyes from plant		1 lecture
sources		
Colorants – UV-Vis characterization of dyes extracted		1 lecture
Knowledge verification.		1 lecture

Compulsory Bibliography:

1. Tofană, M, Aditivi alimentari – interacțiunea cu alimentul, 2006, Ed. AcademicPres, Cluj-Napoca.

Facultative Bibliography:

- 1. Banu C., Stoica A., Bărăscu E., Buţu N., Resmeriţă D., Vizireanu C., Lungu C., Iordan M., 2010, Aplicaţii ale aditivilor şi ingredientelor în industria alimentară, Editura ASAB, Bucureşti
- 2. Banu, C., Butu N., Lungu C., Alexe P., Resmeriță D., Vizireanu C., 2000, Aditivi și ingrediente pentru industria alimentară, Editura Tehnica, București

9. Correlations between the subject against the expectations of the epistemic community representatives, of the professional associations and employers' representatives in the domain

Course content is congruent with the applications of professional national specific companies.

In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems, teachers attend the different conferences/workshops/seminars/round tables, where they meet with specialists from the private sector of food industry and with teachers from other higher education institutions in the country. Meetings aimed identifying the needs and expectations of employers in the field and to coordinate the curricula with similar programs in other higher education institutions.



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10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation methods	10.3. Percent of the final grade
10.4. Course	Logical, coherent and correct application of the acquired notions	Continuous assessment (Evaluation of the answers given to the topics on the exam)	70%
10.5. Seminary/Laboratory	Ability to perform physico-chemical analyzes and interpreting appropriate the result obtained	1 continuous assessment (Practical assessment of professional skills)	30%

10.6. Minimal standard of performance

Discipline content is in accordance with the applications specific national professional associations. In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems, teachers attend the annual meeting of the Association of Food Industry Specialists in Romania, where they meet with specialists from the private sector of food industry and with teachers from other higher education institutions in the country. Meetings aimed identifying the needs and expectations of employers in the field and to coordinate the curricula with similar programs in other higher education institutions.

- 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).

Course coordinator Lecturer Salantă Liana Laboratory work/seminar coordinator

Lecturer Salanță Liana

Filled in on 08.09.2021

1.

Subject coordinator Prof. dr. Maria Tofană

Att.

Approved by the Department on 22.09.2021

Head of the Department Prof. dr. Ramona Suharoschi

Dean

Prof. dr. Elena Mudura

Approved by the Faculty Council on 28.09.2021