UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
Calea Mănăştur 3-5, 400372, Cluj-Napoca
Tel: 0264-596.384, Fax: 0264-593.792
www.usamvcluj.ro

No_____from _____ **Form code USAMV–CN-0703040322**

COURSE DESCRIPTION

1. General data

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	**Food Engineering**
1.7. Teaching Form	**Full time**

2. Course characteristics

2.1. Name of the course	**Functional foods**							
2.2. Course leader				Prof. PhD Adriana Paucean, Associate Prof. PhD Dorin Ţibulcă				
2.3. Coordinator of laboratory activity				Lecturer PhD Anca Farcas				
2.4. Year of study	IV	2.5. Semester	VII	2.6. Type of evaluation	Summative	2.7. Course regime	Content [2]	DS
							Level of compulsory [3]	DFac

3. Total estimated time (hours/semester of the teaching activities)

3.1. Number of hours/week – frequency form	2	of which: 3.2.course	1	3.3. seminary/ laboratory/ project	1
3.4. Total hours in the curricula	28	of which: 3.5.course	14	3.6.seminary/laboratory	14
Distribution of time					Hours
3.4.1.. Study based on handbook, notes, bibliography					6
3.4.2. Extra documentation in the library, on specific electronic platforms and on field					4
3.4.3. Preparation of seminaries/ laboratories/ projects, themes, papers, portfolios and essays					4
3.4.4.Tutorial					3
3.4.5. Examination					5
3.4.6. Other activities					
3.7. Total hours of individual study	22				
3.8. Total hours per semester	50				
3.9. Number of ECTS[4]	2				

4. Pre-conditions (where appropriate)

4.1. of curriculum	Raw vegetable materials, Biochemistry, Food chemistry, General and Special Microbiology, Technology of plant products
4.2. of competences	Identification, description and appropriate use of specific concepts of food science and food safety Management of general engineering processes

5. Conditions (where appropriate)

5.1. of course development	Projector, power point presentation
5.2. of seminary/laboratory/ project development	Pilot station for pastry- bakery products, pilot station for dairy products, raw and auxiliary materials, recipes, analysis laboratory

6. Specific acquired competences

Professional competences	C 1.2 Explanation and interpretation of concepts, processes, models and methods in food science, using basic knowledge of the composition, structure, properties and transformations of food components and their interaction with other systems throughout the agri-food chain C2.3 Application of basic engineering principles and methods for solving technological problems in the agri-food chain
Transversal competences	CT1.Applying strategies of perseverance, rigor, efficiency and responsibility at work, punctuality and accountability for the results of personal activities, creativity, common sense, analytical and critical thinking, solving matters etc, by principles, norms and values of the professional ethics code in food area

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

7.1. Subject general objectives	Rationalize the new trends for functional foods of plant and animal origin and description of obtaining technologies
7.2. Specific objectives	Identification of the bioactive compounds in the functional food and description of their role in the human body The scientific principles and analytical methods for the determination of some bioactive compounds in the laboratory The design of technological diagrams and description of the technological flow for vegetal and animal functional food production

8. Contents

8.1.COURSE **Number of hours – 14**	Methods of teaching	Observations
1. The perspectives of developing foods with health benefits. The nomenclature and the labeling requirements of functional food products	Lecture, heuristic conversation, debate, algorithmic, case study, directed observation	1 lecture
2. Biological active compounds in the vegetal functional food. Description and action mechanism		1 lecture
3. Functional foods from cereals and germinated cereals. Specific technologies for production of functional foods from cereals and germinated cereals		1 lecture
4. Fruits and vegetables as heath protective foods		1 lecture
5. Probiotic – prebiotic – symbiotic		1 lecture
6. Functional foods of animal origin. Functional dairy products. Functional beef products. Functional ocean fish food.		2 lectures

8.2. PRACTICAL WORK **Number of hours – 14**		
1. Labor protection rules in the functional food laboratory. The role and importance of functional foods The evaluation of functional foods.	Theoretical presentation of practical works.	1 lecture
2. Analysis of carotenoids. Total carotenoids determination from different matrices.	Practical demonstration.	1 lecture
3. Total polyphenols content determination from different matrices.	Observation	1 lecture
4. Determination of antioxidant capacity	Conversation	1 lecture
5. Obtaining yogurt with different lactic bacteria cultures and plant bioactive compounds.	Debate	1 lecture
6. Obtaining cans for children.		1 lecture
7. Obtaining functional foods from beef	Case study	1 lecture

Compulsory Bibliography:

1. Costin, G., Segal, R., *Alimente functionale- alimentele si sanatatea- 1999, Editura Academica, Galati*
2. Costin, G., Segal,R., *Alimente pentru nutritie speciala, 2001, Editura Academica, Galati*
3. Farcas, Anca, Paucean Adriana, Socaci Sonia, *Alimente functionale-Indrumator de lucrari practice, 2019, Ed.*

Mega, Cluj-Napoca
4. Ţibulcă, D. şi Jimborean Mirela 2013, *Alimente funcţionale de origine animală, Ed. Risoprint, Cluj-Napoca*

Facultative Bibliography:
1. Banu, C. 2010, *Alimente funcţionale, suplimente alimentare şi plante medicinale, Editura ASAB, Bucureşti*
2. Banu, C. şi colab. 2000, *Biotehnologii în industria alimentară, Editura Tehnică, Bucureşti*
3. Costin, G.M. 2007, *Produse lactate funcţionale, Editura Academică, Galaţi.*
4. Costin, G.M. 2005, *Produse lactate fermentate, Editura Academică, Galaţi*
5. Costin, G., M., *Tehnologia produselor destinate alimentatiei copiilor, 1987, Editura Tehnica, Bucuresti*
6. Costin, G.M., Segal, Rodica 1999, *Alimente funcţionale. Alimentele şi sănătatea, Editura Academică, Galaţi*
7. Segal, B., Segal, Rodica 1991, *Tehnologia produselor alimentare de protecţie, Ed. Ceres, Bucureşti*
8. Segal, B., Cotrău, M., Segal, Rodica 1987, *Factori de protecţie prezenţi în alimente, Ed. Junimea, Iaşi*

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

The course content is congruent with the requirements/needs of professional national specific associations.

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation methods	10.3. Percent of the final grade
10.4. Course	Logical and correct application of the acquired notions. The ability to correctly use the concepts and the specific terms of the discipline	Written exam	60%
10.5. Seminary/Laboratory	Design of a functional food of plant and animal origin Using analytical methods for identification of bioactive compounds from functional foods	Project presentation	40%
10.6. Minimal standard of performance			
Mastering scientific information given through the lectures and practical works at an acceptable level. Obtaining the passing mark at knowledge verification to the end of the practical works is the condition of graduation.			

[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 hours of study (didactical and individual study).

Course coordinator

Prof. univ. dr. ing. Adriana Păucean

Laboratory work/seminar coordinator

Filled in on

09.09.2021

Conf. dr. Dorin Ţibulcă

Şef lucr. dr. ing. Anca Corina Fărcaş

Subject coordinator

Prof. univ. dr. ing. Adriana Păucean

Approved by the Department on

22.09.2021

Approved by the Faculty Council on

28.09.2021

Head of the Department

Prof. dr. ing. Sevastiţa Muste

Dean

Prof. dr. ing. Elena Mudura