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._____of _____ **USAMV form - 0705010103**

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	Master
1.6.Specialization/ Study programme	Food Processing and Quality Control Systems
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	**Sustainable agri-food production systems**							
2.2. Course coordinator				Prof PhD Sevastita Muste				
2.3. Seminar/ laboratory/ project coordinator				Lecturer PhD Maria Simona Chiș				
2.4. Year of study	I	2.5. Semester	**I**	2.6. Type of evaluation	Exam	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	2
3.4. Total number of hours in the curriculum	56	Out of which: 3.5.lecture	28	3.6.seminar/laboratory	28
Distribution of the time allotted					hours
3.4.1. Study based on book, textbook, bibliography and notes					15
3.4.2. Additional documentation in the library, specialized electronic platforms and field					15
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					35
3.4.4. Tutorials					14
3.4.5. Examinations					25
3.4.6. Other activities					15
3.7. Total hours of individual study	119				
3.8. Total hours per semester	175				
3.9. Number of credits[4]	7				

4. Prerequisites (is applicable)

4.1. curriculum-related	Food chemistry; Microbiology; Capitalization of by-products in the food industry; vegetable raw materials versus unconventional raw materials
4.2. skills-related	The student must know the main technologies of the agri-food industry

5. Conditions (if applicable)

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of lecture. Academic discipline requires compliance with the start and end of the course. We do not allow any other activities during the lecture, mobile phones will be turned off.
5.2. for the seminar/ laboratory/ project	During practical works, each student will develop an individual activity with laboratory materials (made available in the book that describes the laboratory work). Academic discipline is imposed throughout the course of practical works.

6. Specific competences acquired

Professional competences	C3.1. Description and use of basic concepts, theories and methods on the sustainability of agri-food technologies. C2-3. Application of basic engineering principles and methods for solving technological problems in the agri-food chain, with a focus on their sustainability. C.1.4.Evaluation of qualitative and quantitative characteristics, performance, sustainability and limits of processes specific to the agri-food chain
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 professional ethics in the food field.

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

7.1. Overall course objective	Acquiring the most modern concepts of agri-food sustainability; its importance in the manufacture of new products, optimization of resource consumption, transformation of technological losses into profit
7.2. Specific objectives	Knowing the objectives of sustainable development Description of the main unconventional raw materials as new food sources; Knowledge of sustainability in the agri-food chain

8. Content

8.1.LECTURE	Teaching methods	Notes
Number of hours –28		
The importance of sustainable agri-food production systems Short history. Worldwide organization in Romania as well. Sustainable Development Goals (SDGs) at EU level.	Lecture	2 lecture = 4 hours
Principles of sustainable agriculture.		1 lecture
Use of unconventional raw materials in food manufacturing. Conventional versus organic farming; production optimization strategies through the use of biostimulants.		2 lecture = 4 hours
		2 lecture = 4 hours

Circular feeding; Bioeconomy - sustainable production, processing and consumption. **Sustainability in food production - optimization of major waste and reuse of by-products resulting from the technological process.** New approach strategies. **The private economic entreprises and openness to the sustainable agri-food chain. New strategies for implementing and certifying sustainability integrated in the management system.** **Food Quality and Safety. A new biotechnological perspective.** **Safa Sustainability Assessment Of Food And Agriculture Systems Guidelines**		2 lecture = 4 hours 2 lecture = 4 hours 2 lecture = 4 hours 1 lecture = 2 hours

8.2.LUCRĂRI PRACTICE **Număr de ore – 28**	Theoretical presentation of practical works	1 lab work (2 hours / work)
Overview: sustainability - finality, practical applications. Sustainable product, sustainable technology. Sustainable development goals. Case studies.		3 labs work
Sustainability of current plant raw materials and their replacement with non-conventional raw materials. Case Study.		1 lab work
Bioproduction of ingredients and raw materials. Circular feeding.		1 lab work
Sustainability in agri-food production units. Optimization of utility consumption; waste management resulting from the technological process; optimization of technological parameters for a sustainable sustainability of the finished product. Case studies		4 labs work
Food Quality and Safety. A new biotechnological perspective. Case studies.		1 lab work

Sustainable production - turning costs into benefits (profit); case studies		1 lab work
Presentation and discussion of case studies conducted by students based on pre-established topics.		2 labs work
Knowledge verification		1 lab work

Compulsory bibliography:

1. Ruerd Ruben, Maja Slingerland, Hans Nijhoff 2006, The Agro-Food Chains and Networks for Development, Ed. Springer, Olanda
2. Muste Sevastiţa, 2006, Depozitarea produselor vegetale, Ed.AcademicPres, Cluj-Napoca.
3. Carlos da Silva, Doyle Baker, Andreq Shepherd, Chakib Jenane, Agro-industries for Development, MPG Groups

Optional bibliography:

https://www.ainia.es/tecnoalimentalia/tecnologia/gestion-integral-del-agua-en-la-industria-agroalimentaria:-como-mejorar-los-costes-de-produccion/

http://roaid.ro/obiectivele-de-dezvoltare-durabila/

https://ec.europa.eu/commission/sites/beta-political/files/reflection_paper_sustainable_annexii_ro.pdf

http://www.diaspora-stiintifica.ro/wp-content/uploads/2016/01/Circular-Economy-Nicolau.pdf

http://www.diaspora-stiintifica.ro/wp-content/uploads/2016/01/Agrowaste-Martinez.pdf

http://www.diaspora-stiintifica.ro/we-bioeconomie-productie-procesare-si-consum-sustenabile/

https://insp.gov.ro/sites/cnepss/wp-content/uploads/2019/10/Analiza-de-situatie-2019.pdf

http://www.fao.org/3/I5640E/i5640e.pdf

http://bcz-cbl.be/fr/presse/premier-cycle-de-suivi-de-la-durabilité-du-secteur-laitier-achevé-le-lait-et-les-produits-laitiers-belges-deviennent-toujours-plus-durables/

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 order to identify ways to modernize and continuously improve teaching and course content, with the latest topics and practical issues, teachers participate in conferences, scientific symposia but also in international meetings and fairs where they interact with the private sector / potential employers of graduates.

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Knowing the importance of sustainable development goals Knowledge of unconventional raw materials Knowledge of the term circular feeding correlated with bioproduction;	Exam	70%

	Optimizing the consumption of utilities and resources in industrial food processes;		
10.5. Seminar/Laboratory	Description of a sustainable agri-food system Carrying out and presenting the case study based on the pre-established topic.	Test	30%
10.6. Minimum performance standards			
. Mastery of scientific information transmitted through lectures and practical work at an acceptable level. Obtaining the pass mark for the ongoing checks is a condition of passability.			

[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
09.09.2021

Course coordinator
Prof PhD Sevatița Muste

Laboratory work/seminar coordinator
Lecturer PhD Maria Simona Chiș

Subject coordinator
Prof PhD Sevatița Muste

Approved by the
Department on
22.09.2021

Head of the Department
Prof PhD Sevatița Muste

Approved by the Faculty
Council on
28.09.2021

Dean
Prof. PhD Elena Mudura