UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____of _____ **USAMV form 0702040103**

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	Bachelor
1.6.Specialization/ Study programme	Control and expertise of food products
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	**Quality control of food products 1**							
2.2. Course coordinator				Lecturer dr. Andruta Muresan				
2.3. Seminar/ laboratory/ project coordinator				Lecturer dr. Andruta Muresan				
2.4. Year of study	IV	2.5. Semester	**VII**	2.6. Type of evaluation	Continuous	2.7. Discipline status	Content[2]	DS
							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					39
3.4.2. Additional documentation in the library, specialized electronic platforms and field					6
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					8
3.4.4. Tutorials					8
3.4.5. Examinations					8
3.4.6. Other activities					
3.7. Total hours of individual study	69				
3.8. Total hours per semester	125				
3.9. Number of credits[4]	5				

4. Prerequisites (is applicable)

4.1. curriculum-related	Biochemistry, Plant raw materials, Hygiene, Toxicology
4.2. skills-related	The student must have knowledge of food chemistry

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	C1.1. To describe and use the basic concepts, theories and methods in the control of raw materials, regarding the main physico-chemical characteristics of the vegetable raw materials involved in the food industry. C1.3. Application of the basic principles and methods of control of plant raw materials for solving engineering and technological problems, including those related to food safety C5.3. To identify the problems specific to food safety and the responsibilities related to their solution by controlling the quality of raw materials
Transversal competences	CT2 Application of interrelation 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

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

7.1. Overall course objective	Acquiring knowledge regarding the quality of raw materials of plant origin.
7.2. Specific objectives	Understand the importance of the factors that influence the quality of raw materials of plant origin in the food industry. To know the quality parameters of the raw materials of vegetal origin and their influence on capitalization means To know the devices and methods for determining the quality of vegetable raw materials.

8. Content

8.1.LECTURE **Number of hours – 28**	Teaching methods	Notes
Technological characterization of fruits and vegetables. Technological and botanical definition of fruits and vegetables. Classification of fruits and vegetables, general chemical composition (mineral substances and organic substances). Food, nutraceutical and energy value of fruits and vegetables. Chemical composition of fruits and vegetables.	Lecture Lecture, Heuristic Conversation, Explanation	1.5 lecture
Post-harvest biological processes in fruits and vegetables. Peculiarities of the valorization flow of fruits and vegetables. Harvesting vegetables and fruits. Post-harvest handling operations. Conditioning of vegetables and fruits. Packaging of horticultural products. Storage of fruits and vegetables.	Lecture, Heuristic Conversation, Explanation	0.5 lectures
Quality of fresh fruit and vegetables. Control methods. Compliance control. Physical control. Marking control using elementary samples. Product control. Determination of maturity indices. Analysis of the quality of vegetables and fruits. Types of methods for determining the quality of horticultural products.	Lecture, Heuristic Conversation, Explanation	0.5 lectures
Quality standards. Subjective methods and objective methods for determining fruit quality. Methods for	Lecture, Heuristic Conversation, Explanation	1 lecture

determining the physical quality indices for horticultural products. Methods for determining the chemical quality indices for horticultural products. Quality assessment by points method.		
Agronomic characteristics and marketing standards of fruits and vegetables. Marketing standards. General marketing standards. Specific marketing standards.	Lecture, Heuristic Conversation, Explanation	1 lecture
Agronomic features and marketing standards of the main fruits: apples, pears, plums, peaches and nectarines, apricots, cherries, strawberries, melons, berries, table grapes.	Lecture, Heuristic Conversation, Explanation	2.5 lectures
Agronomic features and marketing standards of the main vegetables: tomatoes, sweet peppers, hot peppers, cucumbers, carrots, garlic, eggplant, zucchini, lettuce, cultivated mushrooms, cauliflower, broccoli, leeks, rhubarb, asparagus, beans.	Lecture, Heuristic Conversation, Explanation	2.5 lectures
Agronomic features and marketing standards for cereals, legumes and oilseeds. Quality control. Sampling techniques. Determination of organoleptic characteristics for consumer seeds. Evaluation of the physical parameters of cereals, grain legumes and oilseeds.	Lecture, Heuristic Conversation, Explanation	1.5 lectures
Quality control of cereals: wheat, corn, rice, rye, and barley. Grading factors	Lecture, Heuristic Conversation, Explanation	2 lectures
Quality control of legumes and oilseeds: soybeans, peas, lentils, sunflower, rapeseed. Grading factors.	Lecture, Heuristic Conversation, Explanation	1 lecture

8.2. PRACTICAL WORK **Number of hours – 28**	Teaching methods	Notes
Work safety and protection; training on the use of the laboratory equipment;	Heuristic conversation, experiment, teamwork	1 work lab
Control and quality of fresh, frozen and dehydrated vegetables and fruits	Heuristic conversation, experiment, teamwork	4 work labs
Control and quality of cereals, grain legumes, oilseeds and tubers	Heuristic conversation, experiment, teamwork	4 work labs
Control and quality of hop	Heuristic conversation, experiment, teamwork	1 work lab
Control and quality of spicy and flavoring plants	Heuristic conversation, experiment, teamwork	3 work labs
Knowledge assessment		1 work lab

Compulsory bibliography:

1. Muresan Andruta, 2021 *Notite de curs*
2. Muste, Sevastita , Muresan Crina,, 2011, *Controlul calitatii materiilor prime de origine vegetala,- Caiet de lucrari practice, Editura AcademicPres*

3. Andruta Muresan, Muste Sevastita 2018, *Controlulcalitatii produselor de origine vegetala – Caiet de lucrari practice, Editura Mega*

Optional bibliography:

1. Banu, C., col., 2002, Calitatea şi controlul calităţii produselor alimentare, Editura Agir, Bucureşti

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 the teaching and content of courses, with the latest topics and practical issues, teachers participate in conferences, scientific symposia but also in meetings and international fairs where they interact with the private sector / potential employers graduates. The knowledge taught in the discipline is necessary to understand the technological processes in order to control the quality of food.

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Knowledge of the factors that influence the quality of vegetable raw materials in the food industry. Quality parameters for raw materials of vegetable origin used in the food industry	Continuous assessment	70%
10.5. Seminar/Laboratory	Knowledge of the principles for determining the physico-chemical characteristics of plant raw materials. Use of devices for determining quality parameters.	Colloquy	30%
10.6. Minimum performance standards			
Description of the quality control of a vegetal raw material, using precise methods, devices, installations and techniques applied and interpretation of the obtained results • Identifying solutions for maintaining the quality of raw materials during the technological process			

[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).

Filled in on 09.09.2021

Course coordinator
Lecturer PhD. Andruta Muresan

Laboratory work/seminar coordinator
Lecturer PhD. Andruta Muresan

Subject coordinator
Prof. PhD Sevastita Muste

Approved by the Department on 22.09.2021

Head of the Department
Prof. PhD Sevastita Muste

Approved by the Faculty Council on 28.09.2021

Dean
Prof. PhD Elena Mudura