No._____of _____ **USAMV form 0701020102**

SUBJECT OUTLINE

1. Information on the programme

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 products Engineering
1.4. Field of study	Food products Engineering
1.5.Cycle of study[1]	Bachelor
1.6.Specialization/ Study programme	Technology of agricultural products processing (TPPA)
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	**Vegetable Raw Material 1**							
2.2. Course coordinator				Prof.dr. Sevastița Muste				
2.3. Seminar/ laboratory/ project coordinator				Asist.dr. Anamaria Pop				
2.4. Year of study	II	2.5. Semester	III	2.6. Type of evaluation	continuos	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	3	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	14
Distribution of the time allotted					hours
3.4.1. Study based on book, textbook, bibliography and notes					22
3.4.2. Additional documentation in the library, specialized electronic platforms and field					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					12
3.4.4.Tutorials					8
3.4.5.Examinations					6
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 (is applicable)

4.1. curriculum-related	Food Biochemistry, Botany,
4.2. skills-related	The student should have knowledge of Biology, Botany

5. Conditions (if applicable)

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of the exposure. Academic discipline enforce Time start and end of the course. We do not allow any other activities during the lecture, mobile phones are closed.
5.2. for the seminar/ laboratory/ project	The lab work is compulsory consultation practically mentor, each student will develop an individual activity with laboratory materials made available and described in the Practical advisor (vegetable raw materials).

6. Specific competences acquired

Professional competences	C1.1. Describe and use basic concepts, theories and methods related to the main physico-chemical characteristics of plant raw materials involved in the food industry. C1.3.Apply basic principles and methods for solving engineering and technological problems, including those related to food safety. C2.3. To apply the principles and methods of investigation of vegetable raw materials for solving technological problems in the agri-food chain
Transversal competences	CT3 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	Familiarize students with the concepts on production technology, harvesting and exploitation of vegetal raw materials used in the food industry.
7.2. Specific objectives	Understand the importance of raw materials supplying in starch, protein, lipids, substances sweet flavoring for food; To recognize the plant materials studied; To know the factors that influence the quality and productivity of vegetal raw materials.

8. Content

8.1.LECTURE	Teaching methods	Notes
Number of hours – 28		
Object of plant materials .		
Important crop plants supply the food industry with raw vegetables.	Lecture, heuristic conversation, explanation (for all courses)	1 lecture
The main factors in increasing crop production .		
Cereals : general , common biological features		3 lectures
Wheat : Importance , spread and systematic varieties , biology , ecology, culture areas .		
Rye, barley , oats . Important , widespread and systematic varieties , biology , ecology, culture areas .		
Rye, barley , oats . Important , widespread and systematic varieties , biology , ecology, culture areas .		
Corn and other grains (rice , sorghum , millet) . Important , widespread and systematic varieties , biology , ecology, culture areas .		3 lectures
Grain legumes : generalities , particular biological		
Soybeans, peas and beans . Important chemical composition , biology , ecology, ecological zones , crop areas .		
Oilseeds : generalities , common biological features .		3 lectures
Sunflower . Important chemical composition , systematic and varieties , biology , ecology, culture areas .		
Flax oil , canola, castor , sesame import, chemical composition , biology , ecology, culture areas .		
Tuberculifere plants and roots : general , common biological features .		2 lectures
Potato and sugar beet . Important , widespread and systematic varieties , biology , ecology, culture areas .		
Hops .		1 lecture
Important , widespread and systematic varieties , biology , ecology, culture areas ,		
Doctors and aromatic plants		

importance **The main medicinal & aromatic plants cultivated in Romania** Importance. Valorisation in Food Industry		1 lecture

8.2. PRACTICAL WORK **Number of hours – 14**		
Safety rules in laboratory vegetable raw materials. **Lab work 1.** Morphological features of the main cereals (wheat, rye, barley, oats, corn, sorghum, millet)	Plant study Recognition of seeds	1 lab work (2 hours / work)
Lab work 2. Recognition of cereals by grain specificity		1 lab work (2 hours / work)
Lab work 3. Morphology materials providing protein: peas, beans, soybeans, chickpeas, peanuts, lentils, beans, lupins. Study of recognition by beans specificity.		1 lab work (2 hours / work)
Lab work 4. Morphology materials providing lipids: sunflower, rapeseed, sesame, castor, safflower, flax oil, camelina. Study of recognition by oilseeds specificity.		1 lab work (2 hours / work)
Lab work 5. Morphological features of tuberculous and root raw materials: potato and sugar beet		1 lab work (2 hours / work)
Lab work 6. Hop morphology. Morphology of medicinal plants and herbs (basil, caraway, anise, mint, mustard, black / white mustard, coriander, calendula, fennel, lavender, yarrow, Echinacea)		1 lab work (2 hours / work)
Knowledge verification		1 lab work (2 hours / work)

Compulsory bibliography:

1. ". MUSTE, SEVASTITA, 2010 – *Materii prime vegetale în industria alimentară, Editura AcademicPres Cluj-Napoca*
2. DUDA, M., VÂRBAN, D., MUNTEAN, S., 2003, Lucrari practice Fitotehnie, Editura AcademicPres, Cluj-Napoca;
3. MUNTEAN., L., S., si colab, 2003, Fitotehnie, Editura didactica si pedagogica Bucuresti
4. MUNTEAN, L., S., I., BORCEAN, M., AXENTE, I., ROMAN, V., Fitotehnie, Editura Ion Ionescu de la Brad, 2001

Optional bibliography:

1. MUSTE, SEVASTITA, 2006, Materii prime vegetale. Editura Rizoprint, Cluj-Napoca;
2. PUIA, I., SORAN, V., ROTAR I., 1998, Agroecologie, ecologism, ecologizare, Ed. Genesis, Cluj-Napoca.
3. MUNTEAN, L., S., Mic tratat de fitotehnie, vol.II Editura Ceres Bucuresti, 1997.
1. MUNTEAN, L., S., I., BORCEAN, M., AXENTE, I., ROMAN, V., Fitotehnie, Editura Ion Ionescu de la Brad, 2001

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

In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems teachers participate in conferences, scientific symposia and meetings and fairs which interacts with the private / prospective employers graduates. The knowledge taught in the discipline are necessary for understanding the processes for obtaining and controlling food quality.

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 and how to valorification of plant materials in		

	food industry; Factors that influencing the quality of plant materials; Knowledge of the physicochemical characteristics of plant materials;	Continuous assessment	80%
10.5. Seminar/Laboratory	Assimilating the main morphological elements of the studied plant raw materials, basic for the food industry, in order to recognize and identify them. Knowledge and use of specific scientific notions and terms for acquiring a specialized vocabulary.	Colloquy	20%
10.6. Minimum performance standards			
• Identify plant raw materials visually, using precise devices, installations and techniques. • Identifying solutions for maintaining the quality of raw materials during the production 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 25-30 de hours of study (didactical and individual study).
[5] *Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on
6.09.2021

Course coordinator
Prof. Muste Sevastița, PhD

Laboratory work/seminar coordinator
Șef lucr. Dr. Anamaria Pop

Subject coordinator
Prof. Muste Sevastița, PhD

Approved by the
Department on
22.09.2021

Head of the Department
Prof. Muste Sevastița, PhD

Approved by the Faculty
Council on
28.09.2021

Dean
Prof. Mudura Elena, PhD