UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____of _____ **USAMV form 0703030111**

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 Engineering
1.5.Cycle of study[1]	Bachelor
1.6.Specialization/ Study programme	Food Engineering
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	Fruits and vegetables general processing 2							
2.2. Course coordinator			Prof. Phd. Adriana Paucean					
2.3. Seminar/ laboratory/ project coordinator			Lecturer PhD. Anamaria Pop					
2.4. Year of study	III	2.5. Semester	**VI**	2.6. Type of evaluation	continue	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					13
3.4.2. Additional documentation in the library, specialized electronic platforms and field					7
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4.Tutorials					1
3.4.5.Examinations					2
3.4.6. Other activities					

3.7. Total hours of individual study	33
3.8. Total hours per semester	75
3.9. Number of credits[4]	3

4. Prerequisites (is applicable)

4.1. curriculum-related	Raw materials, Biochemistry, Unitary operation in food industry, Food technologies equipment
4.2. skills-related	Identification, description and appropriate use of specific concepts for food science and food safety. Engineering processes management.

5. Conditions (if applicable)

5.1. for the lecture	Projector, presentation. 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	Seminar hall. Laboratory, raw materials, canned vegetables. 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	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. Course objectives (based on the list of competences acquired)

7.1. Overall course objective	Organise, lead and control the technological process
7.2. Specific objectives	• vegetables valorisation by using different preservation methods • finished products characterisation • specific technological flow (operation, equipment, parameters) for different types of canned vegetables and fruits

8. Content

8.1.LECTURE	Teaching methods	Notes
Number of hours – 28		
Semi-processed fruits and vegetables technology		1 lecture
Heat treatment for vegetables preservation	Lecture, explanation,	1 lecture
Dosing, exhausting and closing cans	heuristic conversation	1 lecture
Specific equipment for heat treatments		1 lecture
Vegetables canning		1 lecture
Preservation by reduction of water content/dehydration		1lecture
Preservation by reduction of water content/concentrate		1 lecture
Fruit sugar preserved technology		1 lecture
Fruits juices technologies		1 lecture
Preservation of vegetables by acidification		1 lecture
Special technologies (mustard, soft drinks)		1 lecture
Technological lines for fruits and vegetables processing		1 lecture

8.2. PRACTICAL WORK **Number of hours – 14** Technological project Exam-test	Explanation, heuristic conversation, case study Individual study	6 practical laboratories 1 practical laboratory

Compulsory bibliography:

1. *Paucean Adriana, 2011, Tehnologii de procesare a legumelor si fructelor, Ed. Risoprint, Cluj-Napoca*
2. *Paucean Adriana, 2006, Tehnologia prelucrarii legumelor si fructelor- Indrumator de lucrari practice, Ed. Risoprint, Cluj-Napoca*

1. Banu, C., *Manualul inginerului de industrie alimentara,1999,Editura Tehnica, Bucuresti*
2. Tomasian, E., Dima, E., *Tehnologia Conservelor,1969, Editura Didactica si Pedagogica, Bucuresti*
3. Ioancea, I., C*onditionarea si valorificarea superioara a materiilor prime vegetale in scopuri alimentare, 1988, Editura Ceres, Bucuresti*
4. Marinescu, I., *Tehnologii moderne in industria conservelor vegetale, 1976, Editura tehnica, Bucuresti*
5. Mihalca, G., *Congelarea produselor horticole si prepararea lor pentru consum, 1980, Editura Tehnica, Bucuresti*
6. Banu, C., P*rogrese tehnice, tehnologice si stiintifice in industria alimentara, vol, II, 1982,1983, Editura Tehnica, Bucuresti*
7. Segal, B., 1977, T*ehnologia sucurilor limpezi, Indrumari tehnice, Maia*
8. Segal, B., 1982, P*rocedee de imbunatatire a calitatii si stabilitatii produselor alimentare, Editura Tehnica, Bucuresti*
9. Segal, B., 1984, *Utilaj tehnologic in industria prelucrarii produselor horticole,editura ceres, bucuresti*
10. ****Colectie de standarde pentru industria conservelor de legume si fructe, voil I,II,III, Bucuresti, 1989,1991*

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

Course content is consistent with national professional associations specific applications

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Identification and characterization of specific fruits and vegetables preservation technologies, specific equipments and quality control parameters	examination	60%
10.5. Seminar/Laboratory	Fruits/vegetables processing centre (flow-sheet, equipments, parameters, quality control)	Project presentation	40%
10.6. Minimum performance standards			
Mastering scientific information transmitted through lectures and practical work at an acceptable level Getting the pass mark at the end of testing the laboratory work is the condition of graduation			

[1] Cycle of studies- 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).

Course coordinator
Prof. Phd. Adriana Paucean

Laboratory work/seminar coordinator
Lecturer PhD Anamaria Pop

Filled in on
8.09.2021

Subject coordinator
Prof. Phd. Adriana Paucean

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
PhD Elena Mudura