

DISCIPLINE SHEET

1. Data about the programme

1.1 Superior educational institution	University of Oradea
1.2 Faculty	Environmental Protection
1.3 Department	Food products engineering
1.4 Domain of study	Food products engineering
1.5 Cycle of study	Master
1.6 Program of study/Qualification	Agricultural and food safety and security /Engineer

2. Data about the discipline

2.1 Name of the discipline	Modern Preservation Methods in Food Industry						
2.2 Titular of the course activities	Chief of works, doctor engineer URS MARIANA						
2.3 Titular of the seminar/laboratory/project activities	Chief of works, doctor engineer URS MARIANA						
2.4 Year of study	I	2.5 Semester	I	2.6 Type of evaluation	Ex	2.7 Discipline regime	Ob

Ob – obligatory/compulsory; As – associated; Op – optional.

3. Total estimated time(number of hours of didactical activities per semester)

3.1 Number of hours in a week	3	From which: 3.2 course	1	3.3 seminar/laboratory/project	1/1
3.4 Total of hours according to the educational plan/curriculum	42	From which: 3.5 course	14	3.6 seminar/laboratory/project	14/14
Distribution of the time fund					hours
Study from the book, course support, bibliography, notes					30
Extra documentation in the library, on specialised electronic platforms and out on the fields					30
Preparation of seminars/laboratories, themes, reviews, portfolios and essays					34
Tutoring					
Examinations					4
Other activities.....					10
3.7 Total number of hours of individual study	108				
3.9 Total number of hours per semester	150				
3.10 Number of credits	6				

4. Pre conditions (where it is necessary)

4.1 of curriculum	(Conditioning agents) Principles of food preservation
4.2 of competence	

5. Conditions (where it is necessary)

5.1. of course on going	<ul style="list-style-type: none"> The students shall not attend the courses, seminars/laboratory classes with their mobile phones turned on. Telephone conversations during classes are not allowed, also. The students are not allowed to leave the room where the course is on going just because they want to talk on the phone, even if they have a personal problem. The students will not be allowed to be late for courses, seminars, laboratories because if they are late that leads to the disturbance of the educational process.
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5.2. of seminar/laboratory/project on going	<ul style="list-style-type: none"> The dead line for delivering the seminars' worksheets is established by the titular by mutual agreement with the students. The delivery of a worksheet can be postponed only on the basis of very objective reasons. If, by any circumstances the worksheet is delivered later than the previously established dead line, it shall be downgraded 1 point for each day of delay.
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6. Accumulated specific competences	
Professional competences	<p>C2.3. Application of principles and basic engineering methods to solve technological problems in the agricultural and food related chain.</p> <p>C3.5. Issue of projects related to technologies and products specific to the agricultural and food industry</p>
Transversal competences	

7. Discipline objectives (from the accumulated grid of specific competences)

7.1 general objective of the discipline	<ul style="list-style-type: none"> Understanding the modern methods of food preservation used by students in EU and USA to keep and improved the quality of food. Tracking changes that occur in products while preserving products and keeping the quality parameters of food.
7.2 Specific objectives	<ul style="list-style-type: none"> Once the subject has been promoted, the student must have the ability to understand the principles underlying food preservation, the study of modern conservation methods used worldwide, the study of the changes taking place during the technological process in order to obtain quality products, the analysis quality indices of raw material and finished product.

8. Contents*

8.1 Course	Teaching methods	No. Hours / Observations
Biological principles and food preservation processes	Interactive lecture with video projection	1
Preservation using a magnetic field	Interactive lecture with video projection	1
Preservation using ionizing radiation	Interactive lecture with video projection	1
Preservation using ultra-short light impulses	Interactive lecture with video projection	1
Preservation using ultraviolet (UV) radiation	Interactive lecture with video projection	1
Preservation using ultrasound	Interactive lecture with video projection	1
Preservation through heating using microwave radiation	Interactive lecture with video projection	1

Preservation through heating using high frequency sound waves.	Interactive lecture with video projection	1
Preservation through heating using radio frequency waves.	Interactive lecture with video projection	1
Preservation through indirect heating with Joule effect	Interactive lecture with video projection	1
Drying as a foodstuff preservation method using infra-red radiation.	Interactive lecture with video projection	1
Preservation of cereals at low temperatures.	Interactive lecture with video projection	1
Self-preservation of cereals.	Interactive lecture with video projection	1
The aseptic preservation of foodstuff	Interactive lecture with video projection	1
8.2 Seminar	Teaching methods	No. of hours/ Observations
1.Appreciation of the quality of vegetable raw materials.	Practical demonstration Group work	1
2.Determination of organoleptic properties of vegetables and fruit.	Practical demonstration Group work	1
3.Refractometric determination of dry matter content of vegetables and fruits.	Practical demonstration Group work	1
4.Determination of acidity and pH of vegetables and fruits	Practical demonstration Group work	1
5.Determination of vitamin C in fruit juices	Practical demonstration Group work	1
6.Organoleptic appreciation of clear fruit juices.	Practical demonstration Group work	1
7.Organoleptic assessment of fruit nectars.	Practical demonstration Group work	1
8. Study of the drying process using microwaves	Practical demonstration Group work	1
9. Analysis of canned sterilized fruits	Practical demonstration Group work	1
10. Analysis of canned sterilized vegetables	Practical demonstration Group work	1
11.Determination of gelling capacity of fruit marks	Practical demonstration Group work	1
12.Study of defrosting process on juice losses in food	Practical demonstration Group work	1
13.Packaging used for preserving vegetables and fruits.	Practical demonstration Group work	1
14. Packaging used for aseptic preservation.	Practical demonstration Group work	1
8.4 Project		
1.Motivation of choosing the preserved product type	Display	1
2.Description of the preserved product type	Display	1
3.Raw materials used in canning	Display	1
4.Establishment of raw material quality indices	Calculations	1
5.Materials used in canning	Display	1

6.Auxiliary materials used in canning	Display	1
7.Apparatus and machinery used in canning	Display	1
8.Packaging used to package the product	Display	1
9.Preparation of the manufacturing scheme	Display	1
10.Methods of control over the technological flow	Display	1
11.Preparation of the manufacturing recipe	Display	1
12.Technological flow description	Display	1
13.Establishment of material balance	Calculations	1
14.Presentation and support of the project	Display	1
Bibliografy		
<ol style="list-style-type: none"> 1. Constantin Banu-Tratat de industrie alimentară, Tehnologii alimentare, Editura ASAB, București, 2009 2. Brad Segal, Gheorghe Costin, Rodica Segal – Metode moderne privind îmbogățirea valorii nutritive a produselor alimentare, Editura Ceres, București,1987 3. Brad Segal, Constanța Balint – Procedee de îmbunătățire a calității și stabilității produselor alimentare, Editura Tehnică, București, 1982 4. Petru Niculiță, Mona Popa-Tehnici de conservare a produselor agroalimentare,București 2002 5. Romain Jeantet, Thomas Croguennec, Pierre Schuck, Gérard Brulé - Science des aliments, Editions TEC&DOC, Paris 2007 6. Nicoleta Croitor, Gabriela Lenco- Tehnologia produselor de origine vegetală. Îndrumar de lucrări practice, Editura Fundației Universitare „Dunărea de Jos” , Galați, 2006 7. I.Jianu, Delia Dumbravă, D.Dronca, T.Trască – Principii și tehnici de procesare și conservare a produselor agroalimentare.Determinări. Calcule Tehnologice, Timișoara, 1997 8. Rășenescu I.- Aplicații și probleme de tehnologie în industria alimentară, Editura Didactică și Pedagogică, București,1977 		

* The content and the number of hours allocated to each course/seminar/laboratory/project shall be mentioned in detail for the period of the 14 weeks of each semester/term of the university year

9. Corroboration of the discipline contents with the expectations of the epistemic community representatives, professional associations and representative employers from the domain afferent to the programme.

<ul style="list-style-type: none"> ▪ Students shall acquire necessary knowledge related to the principles and methods of conservation applied to the raw vegetal materials in the technological processes of producing food products ▪ Students shall acquire necessary skills to appreciate raw materials and to determine both qualitatively and quantitatively the obtained finite products
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10. Evaluate

Type of activity	10.1 Evaluation criteria	10.2 Assessment methods	10.3 Share from the final grade
10.4 Course	For grade 5 – knowing 50 % of the school matter		70
	For grade 6 – knowing 60% of the school matter		
	For grade 7 – knowing 70% of the school matter		
	For grade 8 – knowing 80% of the school matter		
	For grade 9 – knowing 90% of the school matter		
	For grade 10 – knowing 100% of the school matter (the students shall make proof of having read the presented bibliographical material)		
10.5 Laboratory	For grade 5 – the student answers correctly to 50% of the questions		20
	For grade 6 – the student answers correctly at 60% of the questions		
	For grade 7 – the student answers correctly at 70% of the questions		

	For grade 8 – the student answers correctly at 80% of the questions		
	For grade 9 – the student answers correctly at 90% of the questions		
	For grade10 – the student answers correctly at 100% of the questions		
10.7 Project	For grade 5 – the student answers correctly at 50% of the questions	Summative assessment/evaluation – sustaining and arguing technical solutions on the basis of the written project – oral evaluation/examination	10
	For grade 6 – the student answers correctly at 60% of the questions		
	For grade 7 – the student answers correctly 70% of the questions		
	For grade 8 – the student answers correctly 0% of the questions		
	For grade 9 – the student answers correctly 90% of the questions		
	For grade10 – the student answers correctly 100% of the questions		
10.8 Minimum standard of performance			
Issuing technical projects and technical processes including justification of the methods, procedures and operations applied.			

Date of completion Signature of the course titular** Signature of the seminar/laboratory/project/
titular**

01.10.2020
Chief of works doctor engineer Urs Mariana
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Date of approval in the department

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Signature of department manager

Chief of works doctor engineer Timar
Adrian Vasile

Dean Signature,

University professor, doctor engineer
Cheregi Ioan