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 techniques of processing 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	**II**	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	2	From which: 3.2 course	1	3.3 seminar/laboratory/project	1
3.4 Total of hours according to the educational plan/curriculum	28	From which: 3.5 course	14	3.6 seminar/laboratory/project	14
Distribution of the time fund					hours
Study from the book, course support, bibliography, notes					20
Extra documentation in the library, on specialised electronic platforms and out on the fields					12
Preparation of seminars/laboratories, themes, reviews, portfolios and essays					13
Tutoring					
Examinations					2
Other activities.....					

3.7 Total number of hours of individual study	**47**
3.9 Total number of hours per semester	**75**
3.10 Number of credits	**3**

4. Pre conditions (where it is necessary)

4.1 ofcurriculum	(Conditioning agents) General technologies in food industry
4.2 of competence	

5. Conditions(where it is necessary)

5.1. of course on going	• 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.

5.2. of seminar/laboratory/project on going	• 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.

6. Accumulated specific competences	
rofessional competences le	**C2.3.** Application of principles and basic engineering methods to solve technological problems in the agricultural and food related chain. **C3.5.** Issue of projects related to technologies and products specific to the agricultural and food industry
Transversal competences	•

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

7.1 general objective of the discipline	▪ The assimilation, in what the students are concerned, of the modern techniques of processing food products which are used, at a large scale, in many countries, and whose aim is to obtain best quality food products. ▪ Surveying the changes that appear within the products during their processing and keeping them in the admitted limits of quality parameters.
7.2 Specific objectives	▪ After graduating a discipline the student must have the ability to understand the principles that lie at the basis of processing food products, the study of modern processing techniques used world wide, the study of the changes that take place during the whole technological process in order to obtain quality products, the analysis of the quality indexes of the raw material and of the finite product

8. Contents*

8.1 Course	Teaching methods	No. Hours / Observations
1.Techniques of separation through membranes.	Interactive lecture with video projection	1
2.Concentration of the food products through reversed. osmosis.	Interactive lecture with video projection	1
3.Concentration of fruit juice through ultrafiltration.	Interactive lecture with video projection	1
4.Freezing of food products with cryogenic agents.	Interactive lecture with video projection	1
5.Cryoconcentration.	Interactive lecture with video projection	1
6.Lyophilization.	Interactive lecture with video projection	1
7.Drying food products in a fluidized bed.	Interactive lecture with video projection	1

8. Products dried instantly.	Interactive lecture with video projection	1
9. Techniques of processing with microwaves.	Interactive lecture with video projection	1
10.Thermoplastic extrusion.	Interactive lecture with video projection	1
11.Processing through ohmic heating.	Interactive lecture with video projection	1
12.Techniques of processing with the help of high pressures.	Interactive lecture with video projection	1
13. Techniques of processing with ultrasounds.	Interactive lecture with video projection	1
14.Techniques applied in order to obtain special types of malt.	Interactive lecture with video projection	1

8.2 Seminar	Teaching methods	No. of hours/ Observations
1. Methods of checking the quality of raw materials.	Practical demonstration Group work	1
2.Determination of dry matter content by oven drying.	Practical demonstration Group work	1
3. Determining the pectic substances in reaction with the ethyl alcohol.	Practical demonstration Group work	1
4.Determining the content of sodium chlorhide from vegetable cans through the Mohr method.	Practical demonstration Group work	1
5.The study of the transformations suffered by the vegetal raw material at scalding.	Practical demonstration Group work	1
6.Study of drying fruits and vegetables.	Practical demonstration Group work	1
7.Determination of rehydration capacity of dry products.	Practical demonstration Group work	I
8.Determining the color of the tomato pasta spectrophotometrically.	Practical demonstration Group work	I
9.Physico-chemical examination of preserved products.	Practical demonstration Group work	1
10.Establishing the optimal conditions for gelling a food product.	Practical demonstration Group work	1
11. Determining the free and the total SO_2 from cans through the iodometric method.	Practical demonstration Group work	1
12.Study of the process of defrosting food using microwaves.	Practical demonstration Group work	1
13.Analysis of frozen vegetables.	Practical demonstration Group work	1
14. Analysis of frozen fruits.	Practical demonstration group work	1

Bibliografie

1. Botez Elisabeta –Tehnici speciale de procesare, Editura Fundației Universitare,, Dunărea de Jos", Galați, 2004
2. Lucian Ioancea, Iosif Kathrein- Condiționarea și valorificarea superioară a materiilor prime vegetale în scopuri alimentare, Editura Ceres, București, 1988
3. Petru Niculiță- Tehnica și tehnologia frigului în domenii agroalimentare, Editura Didactică și Pedagogică București, 1998
4. Angela Albu-Caiet de lucrări practice la Știința Alimentelor și Igiena Alimentației, Editura Universității Suceava, 2003
5. Liviu Chirigiu, Maria Viorica Bubulică, Lucrețiu Radu-Analiza chimică a alimentelor, Editura

Sitech, Craiova, 2010
6. Constantin Dimitriu Metode și tehnici de control ale produselor alimentare și de alimentație publică, Editura Ceres, 1980
7. I.Jianu, Delia Dumbravă, D.Dronca, T.Trască – Principii şi tehnici de procesare şi conservare a produselor agroalimentare.Determinări. Calcule Tehnologice, Timişoara, 1997

* 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.

- 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

10. Evaluare

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		80
	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 correclty to 50% of the questions		20
	For grade 6 – the student answers correclty 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		
10.8 Minimum standard of performance			
Issuing technical projects and technical processes including justification of the methods, procedures and operations applied			

Date of completion 01.10.2020

Signature of the course titular** Chief of works doctor engineer Urs Mariana

Signature of the seminar/laboratory/project/ titular** Chief of works doctor engineer Urs Mariana

mariana_mediu@yahoo.com

Date of approval in the department

.....

Signature of department manager

Chief of works doctor engineer Timar Adrian Vasile

Dean Signature,

University professor, doctor engineer Cheregi Ioan