UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____of _____ **USAMV form 0702030105**

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 Engineering**
1.4. Field of study	**Food Engineering**
1.5. Cycle of study[1]	**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	General technologies of plant products 1							
2.2. Course coordinator				Assoc.Prof. PhD. Simona Maria Man				
2.3. Seminar/ laboratory/ project coordinator				Lecturer PhD. Maria Simona Chiș				
2.4. Year of study	III	2.5. Semester	V	2.6. Type of evaluation	sumative	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					15
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					10
3.4.4. Tutorials					4
3.4.5. Examinations					5
3.4.6. Other activities					
3.7. Total hours of individual study	44				
3.8. Total hours per semester	100				
3.9. Number of credits[4]	4				

4. Prerequisites (is applicable)

4.1. curriculum-related	Raw materials, Biochemistry, Unitary operation in food industry, Food processing equipments, Microbiology, Food Additives and ingredients
4.2. skills-related	Proper identification and description of food science and food safety specific concepts. Engineering processes management.

5. Conditions (if applicable)

5.1. for the lecture	Projector, power point presentation. In the case of the didactic activity carried out online, the teaching methods are adapted.
5.2. for the seminar/ laboratory/	Bakery and pastry pilot plant, raw materials, recipes, laboratory for milling and

project	bakery analyses. In the case of the didactic activity carried out online, the teaching methods are adapted.

6. Specific competences acquired

Professional competences	C3.2. Explanation and interpretation of the principles and methods used in milling technological processes and bakery industry. C1.3. Application of basic principles and methods in the milling and bakery industry aimed to solve engineering and technological problems, including those related to food safety C2.3. Application of basic engineering principles and methods for solving technological problems in the milling and bakery industry C3.3. Monitoring and control of milling and bakery technological processes, identification of atypical situations and proposing solutions
Transversal competences	CT 1 Applying strategies of perseverance, seriousness, efficiency and work responsibility, punctuality and taking the responsibility for the results of personal activity, creativity, common sense, analytical and critical thinking, problem solving, etc., based on the principles, norms and values of the code of professional ethics in the food field.

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

7.1. Overall course objective	Organization and leadership in the milling and bakery manufacture.
7.2. Specific objectives	• Identification and characterization of quality indices of raw and auxiliary materials in milling-bakery • The technological flows for bakery products, stages, quality parameters • Physical, biochemical and microbiological processes in bakery products • Identification of the specific equipment in baking and description of the operation mode. • Quality control on the bakery flow-diagram manufacturing.

8. Content

8.1. LECTURE	Teaching methods	Notes
Number of hours – 28		
Mill departments. Reception and storage grains. Quality indices.	Lecture, explanation, heuristic conversation	1 lecture = 2 hours
Storage of grain. Formation of the parties milling		1 lecture = 2 hours
Grain preparation for milling		1 lecture = 2 hours
Grain mill operations		1 lecture = 2 hours
The phases of the grinding technological process		1 lecture = 2 hours
Rye milling. Corn milling. Mills transport and ventilation.		1 lecture = 2 hours
Quality indices of raw and auxiliary materials from bakery-pastry.		2 lectures = 4 hours
Bakery products manufacturing technology		2 lectures = 4 hours
Biscuit manufacturing technology		1 lecture = 2 hours
Pastries manufacturing technologies		2 lectures = 4 hours
Pasta manufacturing technology		1 lecture = 2 hours

8.2. PRACTICAL WORK		
Number of hours – 28		
L1. Presentation of the laboratory and the pilot bakery-pastry station. Labor protection rules.	Explanation, heuristic conversation, case study	1 practical laboratory = 2 hours
L2. The role of organoleptic, physical and specific properties of cereals in the grinding process.		1 practical laboratory = 2 hours
L3. Methods used to calculate the formation of parties		1 practical laboratory = 2 hours

milling. Grinding grain. Extraction grades and types of flour**.**		
L4. Influence of sensorial and psysico-chemical characteristics of flour on technological flow ((Method SR: 90: 2007)		1 practical laboratory = 2 hours
L5. Frame recipes. Preparation of recipes and monitoring of parameters on the technological flow. Technological calculations.		1 practical laboratory= 2 hours
L6. Assessment of organoleptic and physical properties of final baked products (Methods SR: 91: 2007)		1 practical laboratory = 2 hours
L7. Flour quality determination by baking tests. Straight method		1 practical laboratory = 2 hours
L8. Determination of technological losses in the technological process of bakery products manufacturing		1 practical laboratory = 2 hours
L9. The influence of technological parameters on bread quality.		1 practical laboratory = 2 hours
L10. Determination of specific consumption and manufacturing efficiency in the technological process of bakery products manufacture.		1 practical laboratory = 2 hours
L11-13. Establishment of manufacturing recipes and technological flow in obtaining pastry bakery products. Monitoring the parameters on the technological flow.		3 practical laboratory = 6 hours
L14. Exam-test		1 practical laboratory = 2 hours

Compulsory bibliography:

1. Banu, C. şi colab., 1999, Manualul inginerului din industria alimentară, vol. II, Ed. Tehnică, Bucureşti
2. Bordei, Despina, 2004, Tehnologia moderna a panificatiei, ed. Agir, Bucuresti
3. Bordei, Despina, 2007, Controlul calitatii in industria painificatiei, Ed,. Academica, Galati
4. Modoran Constanţa, 2007, " Tehnologia morăritului şi panificaţiei, , Ed. RISOPRINT Cluj-Napoca
5. Man Simona, Păucean Adriana, 2016, Tehnologia produselor de panificație și patiserie-îndrumător de lucrări practice, Ed. Mega Cluj-Napoca
6. Păucean, Adriana, Man Simona, 2015, Tehnologia produselor vegetale, Tehnologia morăritului și panificației, Editura AcademicPres, Cluj-Napoca

Optional bibliography:

1. Banu, Iuliana, 2010, Procesarea cerealelor in industria moraritului, Ed. University Press, Galati
2. Bordei Despina, Burluc, R., 1998, Îndrumar – Tehnologia şi controlul calităţii în industria panificaţiei, Ed. Univ. "Dunărea de jos" Galaţi;
3. Bordei Despina şi colab., 2000, Ştiinţa şi tehnologia panificaţiei, Ed. AGIR, Bucureşti
4. Giurcă, V., Giurea, A. M., 2002, Factori care influenţează proprietăţile de panificaţie ale grâului. Ed. AGIR, Bucureşti
5. Moldoveanu, Gh., Râmniceanu, M., Niculescu, N., 1980, Utilajul şi tehnologia panificaţiei şi produselor făinoase, Ed. Didactică şi Pedagogică, Bucureşti
6. Paucean Adriana, Man Simona Maria, 2018, Procesarea în industria morarităului si panificatiei, Ed. Mega, Cluj-Napoca.
7.*** Buletin informativ pentru industria morăritului şi panificaţiei, Editat de Asociaţia Specialiştilor din Industria de Morărit şi Panificaţie, Galaţi

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 the main technological processes specific to the milling-bakery industry, of the equipment and installations, technological used as well as of the quality conditions of the finished products	examination	70%
10.5. Seminar/Laboratory	Mastering the physico-chemical control methods on the technological flow of manufacturing the products of the milling-bakery industry. Technological calculations and applications	test	30%
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. The final grade, a weighted average of assessment, practical and project must be equal to or greater than 5.			

[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).

Filled in on
6.09.2021

Course coordinator
Assoc. Prof. PhD. Simona Maria Man

Laboratory work/seminar coordinator
Lecturer PhD. Maria Simona Chiș

Subject coordinator
Assoc. Prof. PhD. Simona Maria Man

Approved by the Department on
22.09.2021

Head of the Department
Prof. PhD. Sevastița Muste

Approved by the Faculty Council on
28.09.2021

Dean
Prof. PhD. Elena Mudura