



No. _____ of _____

USAMV form 0703030112

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	Food Engineering
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	Bakery technology and baked products from wheat							
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	VI	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.



project	In the case of the didactic activity carried out online, the teaching methods are adapted.
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6. Specific competences acquired

Professional competences	<p>C3.1. Description and use of basic concepts, theories and methods regarding milling and bakery technology</p> <p>C2.2. Explanation and interpretation of basic engineering concepts, methods and models in equipment operation issues in milling and bakery technologies</p> <p>C2.3. Application of basic engineering principles and methods for solving technological problems in the milling and bakery industries</p> <p>C2.4. Critical analysis, evaluation of the characteristics, performances and limits of some technological processes and equipment in the field of the agri-food industry</p>
Transversal competences	<p>CT 1.</p> <p>Applying strategies of perseverance, seriousness, efficiency and work responsibility, punctuality and taking the responsibility for the personal activity results, 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.</p>

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

7.1. Overall course objective	Organization and leadership of the technological flow production in the bakery and flour products industries
7.2. Specific objectives	<ul style="list-style-type: none"> • Identification and characterisation of raw materials quality characteristics • The technological flows for bakery products, stages, quality parameters • Physical, biochemical and microbiological processes in bakery products • Identification of the baking specific equipment for the bakery and flour industries; description the operation mode. • Quality control in bakery and flour technologies industries

8. Content

8.1. LECTURE Number of hours – 28	Teaching methods	Notes
Raw and auxiliary materials used in the manufacture of bakery products and flour products	Lecture, explanation, heuristic conversation	2 lectures = 4 hours
General technological flow diagram in baking. Dough preparation (methods)		1 lecture = 2 hours
Dough kneading (processes, parameters, equipment)		1 lecture = 2 hours
Dough fermentation (processes, parameters, equipment)		1 lecture = 2 hours
Dough processing- division, modelling and proofing (processes, parameters, equipment)		1 lecture = 2 hours
Dough baking (physical, biochemical and microbiological processes)		1 lecture = 2 hours
Oven types used in baking		1 lecture = 2 hours
Bakery products storage. Quality defects		1 lecture = 2 hours
Modern methods for bakery production		1 lecture = 2 hours
Biscuit manufacturing technology		1 lecture = 2 hours
The technology of obtaining shortbread and dough scalding		1 lecture = 2 hours
Puff pastry manufacturing technology		1 lecture = 2 hours
Manufacturing technology of the chemically loose flour products (gingerbread, cakes, muffins, sponge cake, waffles)		1 lecture = 2 hours
Manufacturing technology of the mixing and foam type dough		1 lecture = 2 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-	Explanation,	1 practical laboratory = 2 hours



<p>pastry station. Labor protection rules.</p> <p>L2. Influence of sensorial and psysico-chemical characteristics of flour on technological flow (Method SR: 90: 2007)</p> <p>L3. Assessment of organoleptic and physical properties of final baked products (Methods SR: 91: 2007)</p> <p>L4. Determination of flour quality by the method of the baking test. The method of preparing the dough in a single phase</p> <p>L5. Determination of flour quality by the method of the baking test. Dough preparation method by biphasic method</p> <p>L6. The influence of additives used to improve the quality of bakery products</p> <p>L7. The influence of fibers on the dough and bread quality.</p> <p>L8. Calculation elements of the technological process. Frame recipes. Quantitative ratios, technological regime. Production recipes.</p> <p>L9. The influence of fermentation time on bread quality.</p> <p>L10. Elements of technological engineering in the bakery industry.</p> <p>L11. Establishing manufacturing recipes and observing the technological flow in obtaining biscuits and gingerbread .Establishing technological losses and manufacturing efficiency.</p> <p>L12. Establishment of manufacturing recipes and monitoring of the technological flow in obtaining mechanically and chemically loose pastries.</p> <p>L13. Establishment of manufacturing recipes and technological flow in pasta technology</p> <p>L14. Exam-test</p>	<p>heuristic conversation, case study</p>	<p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory= 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p> <p>1 practical laboratory = 2 hours</p>
<p><i>Compulsory bibliography:</i></p> <ol style="list-style-type: none"> 1. Bordei, Despina, 2004, Tehnologia modernă a panificației, ed. Agir, Bucuresti 2. Modoran Constanța, 2007, ” Tehnologia morăritului și panificației, , Ed. RISOPRINT Cluj-Napoca 3. Păucean Adriana, Man Simona Maria, 2018, Procesarea în industria morăritului si panificației, Ed. Mega, Cluj-Napoca 4. Man Simona, Păucean Adriana, 2016, Tehnologia produselor de panificație și patiserie-îndrumător de lucrări practice, Ed. Mega Cluj-Napoca 		
<p><i>Optional bibliography:</i></p> <ol style="list-style-type: none"> 1. Bordei Despina, Burluc, R., 1998, Îndrumar – Tehnologia și controlul calității în industria panificației, Ed. Univ. “Dunărea de jos” Galați; 2. Bordei Despina și colab., 2000, Știința și tehnologia panificației, Ed. AGIR, București 3. Moldoveanu, Gh., Râmniceanu, M., Niculescu, N., 1980, Utilajul și tehnologia panificației și produselor făinoase, Ed. Didactică și Pedagogică, București 4. Giurcă, V., Giurea, A. M., 2002, Factori care influențează proprietățile de panificație ale grâului. Ed. AGIR, București 5. Păucean, Adriana, Man Simona, 2015, Tehnologia produselor vegetale, Editura AcademicPres, Cluj-Napoca 6. *** Buletin informativ pentru industria morăritului și panificației, Editat de Asociația Specialiștilor din Industria de Morărit și Panificație, Galați 		

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 final baked products	examination	70%
10.5. Seminar/Laboratory	Mastering the scientific information communicated through explanation and laboratory practical work at an acceptable level. 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).

Course coordinator

Assoc. Prof. PhD. Simona Maria Man

Laboratory work/seminar coordinator

Lecturer PhD. Maria Simona Chiș

Filled in on
6.09.2021

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