UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____of _____ **USAMV form 0701030112**

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 products Engineering
1.5.Cycle of study[1]	Bachelor
1.6. Specialization/ Study programme	Technology of Agricultural Products Processing
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	Cereal milling and bakery technology 2							
2.2. Course coordinator				Prof. Phd. Adriana Paucean				
2.3. Seminar/ laboratory/ project coordinator				Lecturer Phd. Simona Chis				
2.4. Year of study	III	2.5. Semester	VI	2.6. Type of evaluation	summative	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					3
3.4.5. Examinations					6
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 technologies equipment, Microbiology, Food Additives and ingredients
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 In the case of the didactic activity carried out online, the teaching methods are adapted.
5.2. for the seminar/ laboratory/ project	Pilot plant , raw materials, recipes In the case of the didactic activity carried out online, the teaching methods are adapted.

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 production in milling and bakery productions
7.2. Specific objectives	• 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 • Specific equipment in baking • Quality control in baking

8. Content

8.1. LECTURE	Teaching methods	Notes
Number of hours – 28		
General technological flow in baking		1 lecture
Quality parameters for raw materials used in baking	Lecture, explanation,	1 lecture
Dough preparation (methods)	heuristic conversation	1 lecture
Dough kneading (processes, parameters, equipment)		1 lecture
Dough fermentation (processes, parameters, equipment)		1 lecture
Dough processing- division, modelling and proofing		1 lecture
(processes, parameters, equipment)		1 lecture
Dough baking (physical, biochemical and		1 lecture
microbiological processes)		1 lectures
Oven types used in baking		1 lecture
Bakery products storage. Quality defects		2 lectures
Modern methods for bakery production		1 lecture
Biscuits technology		1 lecture
Baked-goods and pastries technologies		
Pasta technology		

8.2. PRACTICAL WORK		
Number of hours – 28		
L1. Bakery Pilot Plant presentation	Explanation, heuristic	1 practical laboratory
L2. Influence of sensorial and psysico-chemical characteristics of flour on technological flow	conversation, case study	1 practical laboratory
L3.Determination of psysical and sensorial parameters of bakery products		1 practical laboratory
L4. Flour quality determination by baking tests. Straight metod		1 practical laboratory
L5. Methods for the preparation of the dough. The method of preparing dough by biphasic method (sourdough-dough).		1 practical laboratory
L6. Preparation of the dough. Influence of the yeast quantity on the dough and bread quality		1 practical laboratory
L7. Recipe, yield, cantitative ratios. Technological		1 practical laboratory

parameters. **L8.** The processing of the dough. Influence of fermentation period on the bread quality **L9**. Baking. Technological losses during bread baking **L10.** Specific consume and yield during bread baking **L11**. Recipies, technological flow for biscuits and ginger bread production. **L12**. Recipies, technological flow for good baked products **L13**. Recipies, technological flow for pasta production **L14**. Exam-test		1 practical laboratory 1 practical laboratory 1 practical laboratory 1 practical laboratory 1 practical laboratory 1 practical laboratory 1 practical laboratory

Compulsory bibliography:

1. Modoran Constanţa, 2007, " Tehnologia morăritului şi panificaţiei, , Ed. RISOPRINT Cluj-Napoca
2. Banu, C. şi colab., 1999, Manualul inginerului din industria alimentară, vol. II, Ed. Tehnică, Bucureşti
3. Bordei, Despina, 2004, Tehnologia moderna a panificatiei, ed. Agir, Bucuresti
4. Bordei, Despina, 2007, Controlul calitatii in industria painificatiei, Ed,. Academica, Galati

Optional bibliography:

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

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 technological processes in baking. Specific equipments and Quality control parameters	examination	70%
10.5. Seminar/Laboratory		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.			

[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
Prof. Phd. Adriana Paucean

Laboratory work/seminar coordinator
Lecturer Phd. Simona Chis

Filled in on
6.09.2021

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
Prof. Phd. Elena Mudura