UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____from _____ **Form code USAMV–CN**

0701040105

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]	Level 1. Bachelor
1.6. Specialization/ Study programme	Technology of Agricultural Products Processing
1.7. Form of education	Regular studies

2. Information on the discipline

2.1. Name of the course	**MILK AND DAIRY PRODUCTS TECHNOLOGY 2**							
2.2. Course leader				**Associate professor PhD. Mirela Jimborean**				
2.3. Seminar/ laboratory/ project coordinator				**Assistant PhD. Delia Michiu**				
2.4. Year of study	IV	2.5. Semester	VII	2.6 Type of evaluation	Exam	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	Of which: 3.2.course	2	3.3. laboratory	4
3.4. Total number of hours in the curriculum	56	Of which: 3.5.course	28	3.6. Laboratory	28
Distribution of time allotted					Hours
3.4.1. Study based on book, textbook, bibliography and notes					14
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					6
3.4.4. Tutorials					6
3.4.5. Examinations					8
3.4.6. Other activities					0
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	Food Biochemistry, Food chemistry, Food Industry Equipment, Food Microbiology
4.2. skills-related	Identification, description and appropriate use of specific concepts of food science and food safety Understanding the basic notions of how to obtain and the conservation of the products feeding

5. Conditions

5.1. for the lecture	Video projector, ppt presentation.
5.2. for the seminar/ laboratory/ project	Dairy pilot station, raw and auxiliary materials, technological schemes, laboratory analysis

6. Specific competences acquired

Professional competences	C3.1. Description and use of concepts, basic methods and theories regarding the technologies of dairy industry C3.2. Explanation and interpretation of the principles and methods used in technological processes of dairy industry C2.3. To apply principles and scientific methods of packaging and labelling to help solution technological problems in the agro-food chain. C2.4. Critical analysis, evaluation of characteristics, performances and limits of some technological processes and equipment in the field of the milk and dairy products industry.
Transversal competences	CT1. Application of strategies of perseverance, rigor, efficiency and responsibility in work, punctuality and assuming responsibility for the results of personal activities, 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 industry.

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

7.1. Overall course objective	Acquiring knowledge on cheese manufacturing technology
7.2. Specific objectives	Raw material characterization The knowledge of the biochemical processes which underly the obtaining of cheese The interpretation of technological schemes and the description of technologies for varieties of cheese The characterization of final products The understanding of the role and importance of technology in relation to other disciplines and the correlation of the knowledge from the disciplines that concern the general specialty training

8. Contents

8.1.COURSE	Teaching methods	Notes
Introduction to cheese science Classification of cheeses. General information on world cheese production and consumption	Lecture, heuristic conversation, explanation	2 hours
General technology manufacturing cheese: 1. Preparing milk coagulation 2. The coagulation of milk. Processing curd 3. Training and pressing cheese 4. Salting cheeses 5. Maturing cheese 6. Packing cheese	Lecture, heuristic conversation, explanation	12 hours
Manufacturing technology main types of cheese: 1. Fresh cheese 2. Soft cheeses 3. Cheeses ripened in brine; 4. Semi-hard cheeses; 5. Hard cheeses 6. Scalded cheese 7. Cheese kneaded 8. Processed cheese	Lecture, heuristic conversation, explanation	10 hours
Ways of by – products valorisation in dairy industry	Lecture, heuristic conversation, explanation	4 hours

8.2. PRACTICAL WORS		
The general scheme for obtaining cheese. Technological flow parameters	Observation	2 hours
Technological calculations the manufacture of cheese	Exercise	4 hours
The influence of factors on coagulation of milk: the determination of coagulation and clot demand calculation for coagulating milk. The preparation and use of coagulating enzyme solutions	Demonstration, observation	2 hours
Getting a fresh cheese	Practical demonstration	2 hours
Cheese ripened in brine.	Practical demonstration	4 hours
Dutch cheese	Practical demonstration	4 hours
Manufacture of processed cheeses. Establishing manufacturing recipe	Practical demonstration	2 hours
Molded cheese production. Establishing manufacturing recipe	Practical demonstration	2 hours
Colloquy	Checking accumulated knowledge	2 hours

Compulsory bibliography:

1. Jimborean, Mirela Anamaria şi Ţibulcă, D, 2006, Tehnologia de fabricare a brânzeturilor, Ed. Risoprint, Cluj-Napoca.
2. Mirela Anamaria Jimborean şi Dorin Ţibulcă, 2016, Procesarea laptelui – partea a II-a, Editura Risoprint, Cluj-Napoca
3. Mirela Anamaria Jimborean şi Dorin Ţibulcă, 2013, Tehnologia produselor lactate – îndrumător de lucrări practice, Editura Risoprint, Cluj-Napoca

Optional bibliography:

1. Banu, C. şi Vizireanu Camelia, 1998, Procesarea industrială a laptelui, Ed. Tehnică, Bucureşti.
2. Costin, G. şi colab, 2003, Ştiinţa şi ingineria fabricării brânzeturilor, Editura Academica, Galaţi.
3. Jimborean Mirela Anamaria și Michiu Delia, 2019, Valorificarea subproduselor din industria alimentară, Editura RISOPRINT, Cluj-Napoca, ISBN 978-973-53-2319-6.
4. Ţibulcă, D. şi Mirela Jimborean, 2003, Fabricarea produselor lactate şi a brânzeturilor, Editura AcademicPres, Cluj-Napoca.
5. Ţibulcă, D și Jimborean, Mirela Anamaria, 2005, Tehnologia laptelui și a produselor lactate – îndrumător de lucrări practice, Ed. Risoprint, Cluj-Napoca.

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 according with what is done in other universities in the country and abroad. To adapt to market demands, in preparing course description, were taken into consideration advices from graduate students of the Faculty of Food Science and Technology, who are working in the field

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Course	Logical and correct application of the acquired notions	Exam	75%
10.5. Seminar/Laboratory	Application of knowledge in cheese-making technology	Colloquy	25%
10.6. Minimum performance standards			
Knowledge of the main operations and brief description of the operations in the field of technology for obtaining the main assortments of cheeses; Solving concrete problems on the technological flow of obtaining an assortment of cheese Obtaining a minimum grade of 5 for practical works and represents 25% of the final grade			

[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 hours of study (didactical and individual study).

Course coordinator
Associate professor PhD. Mirela Jimborean

Laboratory work/seminar coordinator
Assistant PhD. Delia Michiu

Filled in on
08.09.2021

Subject coordinator
Associate professor PhD. Mirela Jimborean

Approved by
the department
on
22.09.2021

Head of the Department
Professor PhD. Sevastiţa Muste

Approved by
the Faculty
Council on
28.09.2021

Dean
Professor PhD. Elena Mudura