UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____from _____ **Form code 0701030114**

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/ TPPA**
1.7. Form of education	Regular studies

2. Information on the discipline

2.1. Name of the course	**MILK AND DAIRY PRODUCTS TECHNOLOGY 1**							
2.2. Course leader				**Associate professor PhD. Mirela Jimborean**				
2.3. Seminar/ laboratory/ project coordinator				**Assistant PhD. Delia Michiu**				
2.4. Year of study	III	2.5. Semester	VI	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					8
3.4.2. Additional documentation in the library, specialized electronic platforms and field					4
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					3
3.4.4. Tutorials					2
3.4.5. Examinations					2
3.4.6. Other activities					Hours
3.7. Total hours of individual study	19				
3.8. Total hours per semester	75				
3.9. Number of credits[4]	3				

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 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 milk and dairy products industry.
Transversal competence	**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 about the key technologies for dairy products. Understanding the role of technologists role in dairy technological operations and monitoring the process parameters and facilities used in industry.
7.2. Specific objectives	Raw material characterization The knowledge of the biochemical processes which underly the obtaining of dairy The interpretation of technological schemes and the description of technologies for dairy 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
The composition and properties of raw milk. Conditioning milk after milking.	Lecture, heuristic conversation, explanation	1 lecture = 2 hours
Cleaning processes of milk Technology for obtaining drinking milk	Lecture, heuristic conversation, explanation	2 lectures = 4 hours
Technology dietary dairy 1. Yogurt, Sana, buttermilk; 2. Chefir.	Lecture, heuristic conversation, explanation	2 lectures = 4 hours
Technology of cream consumption. Types of cream	Lecture, heuristic conversation, explanation	2 lectures = 4 hours
Technology of butter. Types of butter	Lecture, heuristic conversation, explanation	2 lectures = 4 hours
Technology of ice cream. Types of ice	Lecture, heuristic conversation, explanation	3 lectures = 6 hours
Concentrated and dried dairy technology	Lecture, heuristic conversation, explanation	2 lectures = 4 hours
8.2. PRACTICAL WORS HOURS		
Location rules and equipment for milk processing units Sanitation in milk processing units	Observation	2 hours
Behaviour of milk proteins to external factors. Indices of quality of the collected milk.	Demonstration, observation	2 hours
Normalization of milk. Technological calculations.	Exercise	2 hours
Manufacture of yoghurt	Practical demonstration	4 hours

Beat milk and Sana manufacture	Practical demonstration	4 hours
Technological calculation in the manufacture of drinking milk and dairy products acidic	Exercise	2 hours
Butter manufacture	Practical demonstration, observation	2 hours
Ice cream manufacture. Establishing manufacturing recipe	Practical demonstration, observation	4 hours
Technological calculations in the manufacture of cream, butter and ice cream	Exercise	2 hours
Obtaining concentrated milk and powdered. Consumption norms. Technological calculation to obtain milk powder	Observation Exercise	2 hours
Colloquy	Checking accumulated knowledge	2 hours

Compulsory bibliography:

1. Mirela Anamaria Jimborean şi Dorin Ţibulcă, 2013, Tehnologia produselor lactate – îndrumător de lucrări practice, Editura Risoprint, Cluj-Napoca, ISBN 978-973-53-1012-7
2. Ţibulcă, D. şi Mirela Jimborean, 2005, Tehnologia laptelui şi a produselor lactate, Editura Risoprint, Cluj-Napoca.
3. D. Ţibulcă, Mirela Anamaria Jimborean, 2008, Tehnologia de obţinere a produselor lactate, Editura Risoprint, Cluj-Napoca, ISBN 978-973-751-722-7
4. Dorin Ţibulcă şi Mirela Anamaria Jimborean, 2015, Procesarea laptelui, 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., 2005, Produse lactate fermentate, Editura Academica, Galaţi;
3. Ţibulcă, D. şi Mirela Jimborean, 2003, Fabricarea produselor lactate şi a brânzeturilor, Editura AcademicPres, 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, coherent and correct learning of milk technology notions	Exam	75%
10.5. Seminar/Laboratory	Logical, coherent and correct application of the acquired notions	Colloquy	25%

10.6. Minimum performance standards

Knowledge of the main operations and brief description of the operations in the field of the milk and dairy products technology.
Solving concrete problems on the technological flow of obtaining a dairy product.
Obtaining a minimum grade of 5 for practical works conditions the entrance to the exam

[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 08.09.2021

Course coordinator
Associate professor PhD. Mirela Jimborean

Laboratory work/seminar coordinator
Assistant PhD. Delia Michiu

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