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## Project “Enhancing capacity of universities to initiate and participate in clusters development on innovation and sustainability principles” (UniClaD)

Program Erasmus +, projectKA2 n° 609944-EPP-1-2019-1-LT-EPPKA2-CBHE-JP

### 1 Title of the course

The educational and practical training program «Technology of cheese and fermented milk products production»

**Editor:** Poltava State Agrarian University

### 2 Learning outcomes of the whole course

#### Short description and definition of competences acquired

The student is able to...

- to have the opportunity to acquire both theoretical knowledge and practical skills in the production technology of fermented milk drinks, cottage cheese, sour cream, soft cheeses and semi-hard cheeses, quality control of raw materials, semi-finished and finished products;
- to get acquainted with the technological equipment for the production of fermented milk products and cheeses on the example of the Milk Local Product expert center;
- to learn how to make technological calculations in the production of fermented milk products and cheeses;
- to get acquainted with the mechanism for forming and ensuring the effective functioning of clusters involving dairy enterprises.



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## 3 Overall structure of the course

Title of the units:

- CLUSTERS IN THE DAIRY INDUSTRY
- REQUIREMENTS FOR THE QUALITY OF RAW MILK, RANGE AND CLASSIFICATION OF FERMENTED MILK PRODUCTS AND CHEESES, TECHNOLOGICAL EQUIPMENT
- TECHNOLOGY FOR THE PRODUCTION OF FERMENTED MILK PRODUCTS AND CHEESES
- QUALITY CONTROL OF RAW MATERIALS, SEMI-FINISHED AND FINISHED PRODUCTS. ORGANISATION OF THE DAIRY BUSINESS

## 4 Unit description

### 4.1 Description of Unit 1

<p><b>Name of the Unit: CLUSTERS IN THE DAIRY INDUSTRY</b></p>	<p><b>Estimated duration for students:</b> 4 hours</p>
<p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• Development of the potential of the Poltava State Agrarian University as an educational and scientific component of cluster initiatives in the agri-food sector. Results of the Milk Local Product expertise centre</li> <li>• Mechanism for the formation and effective functioning of clusters with the participation of dairy farms</li> </ul>	<p><b>Competences:</b></p> <p>Ability to use the mechanism of forming and ensuring the effective functioning of clusters</p> <p>The learner is able to ...</p> <ul style="list-style-type: none"> <li>•to effectively use the mechanism of formation and functioning of clusters in the dairy industry</li> </ul>

#### Director's plan

Lecture with the use of multimedia equipment, oral interaction with students.

Practical work

#### Assessment / Certificate of Performance

Question and answer session with students. Group activity of students and presentation of joint work. Discussion club.



## 4.2 Description of Unit 2

<p><b>Name of the Unit: REQUIREMENTS FOR THE QUALITY OF RAW MILK, RANGE AND CLASSIFICATION OF FERMENTED MILK PRODUCTS AND CHEESES, TECHNOLOGICAL EQUIPMENT</b></p>	<p><b>Estimated duration for students:</b> 12 hours</p>
<p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• Requirements for the quality of raw milk for the manufacture of dairy products</li> <li>• Range and classification of fermented milk products</li> <li>• Assortment and classification of cheeses</li> <li>• Regulatory and technical documentation requirements for finished products</li> <li>• Technological calculations for producing fermented milk and cheese</li> <li>• Technological equipment for producing fermented milk and cheese</li> </ul>	<p><b>Competences:</b></p> <p>Ability to use special knowledge of the classification, assortment and principles of sorting of fermented milk products and cheeses; formation of consumer properties and quality of products.</p> <p>Ability to select and operate technological equipment, draw up equipment and technological schemes for milk processing</p> <p>The learner is able to ...</p> <ul style="list-style-type: none"> <li>• to analyse and evaluate the structure of the range of fermented milk products and cheeses, their consumer properties and assess their quality.</li> <li>• to choose modern equipment for technical equipment of new or reconstructed enterprises (workshops), know the principles of its operation and rules of operation, draw up equipment and technological schemes for milk processing</li> <li>• to use technological equipment for the production of cheese and sour milk products.</li> </ul>

### Director's plan

Lecture with the use of multimedia equipment. Practical work (synthesizing cause and effect relationships). Practical work - calculation

### Assessment / Certificate of Performance

Testing. Question and answer session with students. Oral interaction with students. Group activity of students and presentation of joint work. Discussion club.



## 4.3 Description of Unit 3

<p><b>Name of the Unit: TECHNOLOGY FOR THE PRODUCTION OF FERMENTED MILK PRODUCTS AND CHEESES</b></p>	<p><b>Estimated duration for students:</b> 30 hours</p>
<p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• Technology for the production of fermented milk beverages</li> <li>• Technology for the production of cottage cheese</li> <li>• Sour cream production technology</li> <li>• Soft cheese production technology</li> <li>• Semi-hard cheese production technology</li> </ul>	<p><b>Competences:</b></p> <p>Ability to implement the technologies for the production of cheese and fermented milk products based on the understanding of the transformation of the main components of milk during the technological process</p> <p>Know the technology of cheese and dairy products production</p> <p>The learner is able to ...</p> <ul style="list-style-type: none"> <li>•to implement technologies for processing milk into food products based on knowledge of the laws of physical, chemical, biochemical and microbiological transformations of the main components of milk during technological processing.</li> <li>•to ensure compliance with parameters and control technological processes for the production and processing of livestock products</li> </ul>

### Director's plan

Laboratory work.

### Assessment / Certificate of Performance

Laboratory report.



## 4.4 Description of Unit 4

<p><b>Name of the Unit: QUALITY CONTROL OF RAW MATERIALS, SEMI-FINISHED AND FINISHED PRODUCTS. ORGANISATION OF THE DAIRY BUSINESS</b></p>	<p><b>Estimated duration for students:</b> 14 hours</p>
<p><b>Content:</b></p> <ul style="list-style-type: none"> <li>• Quality control of raw materials, semi-finished and finished products. Determination of compliance with regulatory and technical documentation requirements</li> <li>• Packaging and labelling</li> <li>• Economic justification for the production of fermented milk products and cheese. Organisation of the dairy business</li> </ul>	<p><b>Competences:</b></p> <p>Ability to control technological processes during milk production and processing.</p> <p>Ability to apply knowledge of the organisation and management of the technological process of milk processing.</p> <p>Ensure compliance with the parameters and control the technological processes of milk processing.</p> <p>The learner is able to ...</p> <ul style="list-style-type: none"> <li>•to apply international and national standards and practices in professional activities.</li> <li>•to apply knowledge of the organisation and management of the technological process of milk processing for the effective conduct of economic activities of the enterprise</li> </ul>

### Director's plan

Lecture with the use of multimedia equipment. Laboratory work. Practical work.

### Assessment / Certificate of Performance

Question and answer session with students. Oral interaction. Laboratory report. Testing. Group activity of students and presentation of joint work. Discussion club. Report. Calculation.