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| **Title and Code** of the subject:  **Dairy industry technology MTBE7027A** | **ECTS Credit Points: 3** |
| **Type** of the subject: **compulsory** / optional | |
| **Ratio of theory and practice: 1 / 3** (credit 25-75%) | |
| **Type and number of classes per semester**: 14 hour(s) lecture and 42 hour(s) practice per **semester**  **Number of teaching hours / week:** 1+3 (lecture and practice) | |
| **Type of exam**: **exam** / practical course mark | |
| **Subject in the curriculum:** semester 5 | |
| Preliminary requirements:basic knowledge on chemistry and biology, biochemistry physiology and food chemistry. | |

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| **Summary of content - theory**: |
| **Course objectives**: to provide the necessary theoretic and practical information on the dairy industry, production and preservation of dairy products including technology issues.  **Schedule**:   1. Introduction to dairy industry, current trends in milk consumption & processing, physical and chemical composition of milk, its quality and nutritive value 2. Macro and micro element content of milk, organoleptic characteristics and microbiology 3. Milk quality, sampling and quality control 4. Basic operations in milk processing: reception, storage, cleaning, pasteurisation, homogenisation, fat content, etc. 5. Dairy products: milk-based drinks, special steps in the production 6. Production of sweet and sour cream and butter 7. Production of cheese 8. Production of quark and cottage cheese 9. Production of processed cheese 10. Production of condensed and powdered dairy products 11. Production of ice creams 12. Role of milk and fermented products in the human nutrition 13. Effect of animal health on the milk quality 14. Methods of and tasks for the product development in the dairy industry |
| **Summary of content - practice**: |
| Skills to be learnt: practical issues of dairy processing.  **Schedule:**   1. Milk quality: sampling and evaluation of raw milk 2. Cream production, separation and setting the fat content 3. Sour cream and butter production 4. Quark and cottage cheese production 5. Soft cheese production and ageing 6. Production of milk drinks (ice coffee, caramel & fruit flavoured products) 7. Fermented dairy products (natural and flavoured) 8. Use of fermentation by-products: whey-based products 9. Ice cream production 10. Production of condensed and powdered milk |
| **Literature, handbooks in English** |
| * Chandan, R.C., Kilara, A., Shah, N.P. (2018): Dairy Processing and Quality Assurance. 2008 & 2016 by John Wiley & Sons Ltd. p.663 * Teknotext AB (1995). Dairy processing handbook. Tetra Pak Processing Systems AB. S-221 86 Lund, Sweden. p.442 * Datta, N., Tomasula, P.M. (2015): Emerging Dairy Processing Technologies: Opportunities for the Dairy Industry 2015 by John Wiley & Sons, Ltd. p.362 |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**  * Knowledge of technical expressions of dairy processing * Knowledge of basic principles of dairy processing * Knowledge of the methods of skill improvement and learning in the relevant field of study (dairy processing)  1. **Skills:**  * Capable of improving his/her knowledge and to use various methods of obtaining knowledge and self-education * Having good communication skills: he/she is able to express his/her professional point of view in a debate * Capable of using the on-line and printed literature in the relevant field * Capable of problem solving individually or in a team  1. **Attitude:**  * Open for the opinion of others in the relevant field (dairy processing) * Open for the plans and questions of economic actors  1. **Autonomy and responsibility:**  * He/she is having the sense of responsibility and reflecting the consequences of his/her activities * Expresses his/her opinion individually with full responsibility and based on professional knowledge * Takes responsibility for the work of others |

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| **Responsible lecturer: László Stündl, PhD, associate professor** |
| **Other lecturer(s):** |

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| **Terms of course completion:** |
| 1. Attendance to lectures/seminars |
| **Form of examination:** |
| Oral exam |
| **Requirement(s) to get signature:** |
| Attendance to lectures/seminars |

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| **Exam questions:** |
| 1. Describe the current trends in milk and dairy products consumption. 2. Main components of the milk and the quality requirements 3. Physical, chemical and microbiological characteristics of the milk 4. The process of milk sampling and quality control 5. The objective methods of quality measurement 6. First steps in milk processing: reception, quality control, storage, cleaning, pasteurisation, homogenisation 7. Main characteristics of milk-based drinks, special steps in the production and their production technology 8. Main characteristics of sweet and sour cream and butter and their production technology 9. Main characteristics of cheese and their production technology 10. Main characteristics of quark and cottage cheese and their production technology 11. Main characteristics of processed cheese and their production technology 12. Main characteristics of condensed and powdered dairy products and their production technology 13. Main characteristics of ice creams and their production technology 14. Role of milk and fermented products in the human nutrition 15. Effect of the animal diseases on the milk quality 16. Methods of and tasks for the product development in the dairy industry |