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| **Title and Code** of the subject: **Food analytics MTBE7023A** | **ECTS Credit Points: 4** |
| **Type** of the subject: compulsory | |
| **Ratio of theory and practice: 50/50** (credit%) | |
| **Type and number of classes per semester**: 28 hour(s) lecture and 28 hour(s) practice per **semester**  Number of teaching hours / week: 2+2 (lecture and practice) | |
| **Type of exam**: practical course mark | |
| **Subject in the curriculum:** semester 5 | |
| Preliminary requirements:- | |

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| **Summary of content - theory**: |
| Course objectives: The main aim of the lectures is to know the classic analytical methodologies and their theoretical background. The students get knowledge about different methods which are suitable for the determination of physicochemical parameters of food.  **Schedule:**   1. Food ingredients; Sampling and sample preparation 2. Methodology of moisture content, ash content and electrical conductivity determination 3. Methodology of lipids determination 4. Methodology of proteins determination 5. Methodology of carbohydrates determination 6. Methodology of fibre content determination 7. Methodology of vitamin determination 8. Methodology of enzyme determination 9. Methodology of antioxidant determination 10. Methodology of amino acid determination 11. Methodology of acid content and acidity determination 12. Methodology of alcoholic beverages’ nutritional parameter determination 13. Methodology of sensory analysis 14. Methodology of nutritional value calculation |
| **Summary of content - practice**: |
| Skills to be learnt: The main aim of the practices is to carry out different classic analytical methods in the laboratory. At the end of this semester, students will be able to prepare samples and to determine the nutritional parameters of different food.  **Schedule:**   1. Safety training 2. Determination of dry matter content, ash content and electrical conductivity 3. Determination of fat content 4. Determination of nitrogen and protein content 5. Determination of total carbohydrate content 6. Determination of total dietary fibre content 7. Determination of vitamin C 8. Determination of diastase activity 9. Determination of total phenolic and flavonoid content 10. Determination of proline content 11. Determination of acid content, acidity and pH 12. Determination of physicochemical parameters of alcoholic beverages 13. Sensory analysis 14. Test |
| **Literature, handbooks in English** |
| 1. János Csapó, Éva Visi Vargáné (2011): Introduction to the Chemistry of Foods and Forages. Digitális tankönyvtár (http://www.tankonyvtar.hu/hu/tartalom/tamop425/0059\_chemistry\_of\_foods/adatok.html) 2. Péter Sipos (2013): Quality Analysis of Agricultural Products. Digitális tankönyvtár (<http://www.tankonyvtar.hu/hu/tartalom/tamop412A/2011_0009_Sipos_Peter-Quality_Analysis_of_Agricultural_Products/ch04s02.html>) 3. Bogdanov, S. (2002). Harmonised Methods of the Interantional Honey Commission. Swiss Bee Research Centre. FAM, Liebefeld, CH-3003 Bern, Switzerland 4. Codex Alimentarius; Directives |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**  * Students will know important physical, chemical and biological changes in food * Students will know classic analytical methods to determine physicochemical parameters  1. **Skills:**  * Students will be able to carry out laboratory tests and analysis * Students will be able to interpret and apply new analytical methods  1. **Attitude:**  * Students shall make efforts to solve different problems in food preparation and food industry  1. **Autonomy and responsibility:**  * Students shall be able to take responsibility for their work |

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| **Responsible lecturer: Dr. Nikolett Czipa, associate professor** |
| **Other lecturer(s): Loránd Alexa, PhD student; Andrea Kántor, PhD student; Andrea Bogardi Tóthné, technician** |
| **Terms of course completion:** |
| 1. Completing exercises 2. Test reports 3. Successful test |
| **Form of examination:** |
| Test and practical course mark |
| **Requirement(s) to get signature:** |
| Successful test (60%) and participation in practices |

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| **Exam questions:** |
| 1. Characterisation of food ingredients 2. Requirements for sampling 3. Determination of dry matter and moisture content 4. Determination of ash content and electrical conductivity 5. Determination of lipid content 6. Determination of protein content 7. Determination of TDF content 8. Determination of vitamin C 9. Determination of diastase activity 10. Determination of total phenolic content 11. Determination of flavonoid content 12. Determination of amino acid content 13. Determination of pH, acid content and acidity 14. Determination of physicochemical parameters of beer |