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| **Title** **and Code** of the subject:  **Quality control of plant origin food products, MTBE7036A** | **ECTS Credit Points: 3** |
| **Type** of the subject: compulsory / **optional** | |
| **Ratio of theory and practice: 50/50** (credit%) | |
| **Type and number of classes per semester**: 14 hour(s) lecture and 14 hour(s) practice per **semester**  Number of teaching hours / week :1+1 (lecture and practice) | |
| **Type of exam**: **exam** / practical course mark | |
| **Subject in the curriculum:** semester II. | |
| Preliminary requirements:- | |

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| **Summary of content - theory**: |
| Course objectives:  This subject purposes to improve the student’s competence to understand the importance of different quality parameters in agricultural or food use and to prepare them for the interpretation of processes and results of quality control. Its first part is about the general issues of quality control; definitions, its aims and principles. The second part summarizes the possibilities of physical, chemical and microbiological analysis used in the quality control of agricultural products, the principles of main methods used in quality analysis. The third part presents the quality requirements of agricultural products, focusing on standards, recommendations and industrial demands, the role and effects of different parameters and the importance of different analytical properties.  **Schedule:**   1. Introduction. Quality assurance methods and tools. 2. About FAO-WHO and Codex Alimentarius. 3. Sampling methods 4. Lot, primary samples, bulk samples, laboratory samples 5. Testing laboratory, accreditation. 6. Organoleptic tests 7. Cereal qualification methods 8. Quality control of grains (physical methods) 9. Quality contol of wheat and flour (rheological methods) 10. Wheat and flour tests (protein content, wet gluten content, Hagberg-falling number) 11. Quality control of industrial crops (potato) 12. Quality control of industrial crops (sugar beet) 13. Quality control of industrial crop (oil plants, sunflower) 14. Quality control of industrial crop (oil plants, rapeseed) |
| **Summary of content - practice**: |
| Skills to be learnt:  The general aim of the practice is to enable students to acquire knowledge of the processing raw material and finished product qualification. We will carry out specific quality tests for products of plant origin for different manufacturing uses. Absence from practice in the given semester is possible but only 3 occasions.  **Schedule:**   1. Safety education and accident prevention 2. Demonstration the tools using in the practice 3. Quality requirements of different plant origin food products. Using standards in the practice 4. Sampling tools 5. Purity evaluation 6. Calculation practice 7. Determination the starch content 8. Measure the hectoliter mass 9. Determination the wet gluten content 10. Measure the gluten spreading 11. Calculation practice 12. Measure the potato dry matter content 13. Potato quality control (reducing sugar content) 14. Potato quality control (fry colour) |
| **Literature, handbooks in English** |
| 1. Kent K. Stewart-John R. Whitaker (1984): Modern Methods of Food Analysis. Avi Publishing Company, INC Westport, Connecticut. ISBN: 978-94-011-7381-0 2. Marwaha, K. (2010): Control and Analysis for Food and Agricultural Products. Gene-Tech Books New Delhi India. 664. 272 p. ISBN 978-81-89729-93-6 3. Sipos, P. (2013): Quality analysis of Agricultural Products. University of Debrecen. ISBN:978-963-473-660-8 |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**  * Know the principles of laboratory testing, which is necessary to identify a problem in the food industry.  1. **Skills:**  * Students will able to carry out a laboratory task, taking into account the environmental and health protection aspects.  1. **Attitude:**  * Students are sensitive and open to the problems in the food industry, strive to analyze and solve them. |

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| **Responsible lecturer: Dr. Diána Ungai, assistant professor, PhD** |
| **Other lecturer(s): ………..., ………………….** |

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| **Terms of course completion:** |
| 1. Completing assignments 2. Giving presentation 3. Take an exam |
| **Form of examination:** |
| written exam |
| **Requirement(s) to get signature:** |
| Attendance at **lectures** is recommended, but not compulsory.  Participation at **practice** is compulsory. Students must attend the practice classes and may not miss more than three times during the semester. In case a student does so, the subject will not be signed and the student must repeat the course. Attendance at practice classes will be recorded by the practice leader.  Requirements to get a grade:  The minimum requirement for the test is 60%.  0-59 % fail (1)  60-69 % pass (2)  70-79 % satisfactory (3)  80-89 % good (4)  90-100 % excellent (5) |

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| **Exam questions:** |
| 1. What is the definition of quality? 2. Elements of the quality control! 3. The definition of mandatory standards and voluntary standards! 4. What are the main sources of an analytical method? 5. What are the main properties of an analytical methods, please list at least 5 and tell the definition of them! 6. Please tell the definitions and types of sampling and lots (lot, primary samples, bulk samples)? 7. How should a sample be collected to get laboratory sample? 8. How should the sample be packed? 9. Types of probability sampling methods? 10. Types of nonprobability sampling methods? 11. How can you prepare the sample for the analysis? 12. The main steps of the sensory evaluation (please write 1-2 sentences about its steps)! 13. What are the main physical properties of an agricultural product? 14. Please talk about the role and analysis of water content! 15. Please talk about nitrogen-containing compounds! 16. How can you classify simple proteins by solubility? 17. Please talk about lipid content! 18. Please talk about carbohydrate content! 19. Please talk about ash content! 20. Quality parameters of industrial crops (sugar beet) 21. Quality parameters of industrial crops (oil plants) 22. Quality parameters of industrial crops (potato) |