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| **Title and Code** of the subject: **General plant pathology and diagnostics Code: MTMNO7004A** | **ECTS Credit Points3** |
| **Type** of the subject: **compulsory** / optional | |
| **Ratio of theory and practice:50/50** (credit%) | |
| **Type and number of classes per semester**: 42 hour(s) lecture and 42 hour(s) practice per **semester**  Number of teaching hours / week : 3+3 (lecture and practice) | |
| **Type of exam**: **oarl exam** / practical course mark | |
| **Subject in the curriculum:** semester 1. | |
| Preliminary requirements:- | |

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| **Summary of content - theory**: |
| Course objectives:   1. Introduction of plant pathology, universal and national history of plant pathology 2. Introduction of plant pathology, universal and national history of plant pathology 3. Formation of mycotoxins and their role in food safety 4. Endogenous (genetic) diseases. Exogenous, non-infectious diseases (climatic, edaphic factors, toxic substances) 5. Endogenous (genetic) diseases. Exogenous, non-infectious diseases (climatic, edaphic factors, toxic substances) 6. Infectious diseases: viruses, viroids, subviral forms 7. Infectious diseases: viruses, viroids, subviral forms 8. Prokaryotes (bacteria, selective bundle bacteria) 9. Prokaryotes (bacteria, selective bundle bacteria), diseases caused by phytoplasmas (and spiroplasmas) 10. Epidemiological concepts, types; Plant protection forecast options of plant diseases for major diseases 11. Disease control: agrotechnical, mechanical, chemical protection 12. Knowledge of plant pathophysiology: host-parasite interactions; forms of resistance, tolerance and their role in plant protection 13. Knowledge of plant pathophysiology: host-parasite interactions; forms of resistance, tolerance and their role in plant protection 14. Mycorrhizae; biological control against plant pathogens |
| **Summary of content - practice**: |
| Skills to be learnt:  Diagnostics   1. Basic diagnostic 2. Symptomatic summary I-II. 3. Symptomatic summary I-II. 4. Classical possibilities of diagnosis: direct microscopic examination, microscopic preparations, production of pure culture (media, sterile work, plating, plate casting) 5. Classical possibilities of diagnosis: direct microscopic examination, microscopic preparations, production of pure culture (media, sterile work, plating, plate casting) 6. Examination of pure cultures by microscopic, biochemical methods (microscopic measurements, spore counting, classical and modern bacteriological methods); modern possibilities of diagnosis: Serological methods (principles, simple and complex serology, ELISA types, polyclonal and monoclonal antibody application) 7. Nucleic acid and protein based techniques (PCR, gel electrophoresis, RAPD, RFLP, dot-blot hybridization) Cultivation on live plants: reinfection, indicator plants, test plants 8. Detailed symptomatic overview: symptoms of apple and pear diseases 9. Symptoms of the disease of stone fruits, grape, berries 10. Symptoms of disease of courgette plants, cabbage, pepper, tomato 11. Symptoms of potato and legumes disease 12. Symptoms of cereal diseases 13. Symptoms of sunflower and corn diseases 14. Overview of additional diseases |
| **Literature, handbooks in English** |
| 1. Agrios, G.N. (2005): Plant Pathology, Fifth Edition. Academic Press. 2. Sambamurti A.P.S.S. (2006): A Textbook of Plant Pathology. IK International. 3. Dhingra, O.D. – Sinclair, J.B. (1995): Basic Plant Pathology Methods. Lewish Publishers   For praktical trainings:  compulsory:   * Fox, R.T.V. (1993): Principles of Diagnostic Techniques in Plant Pathology. CAB International. pp. 213 * Dhingra, O.D. – Sinclair, J.B. (1995): Basic Plant Pathology Methods. (Second Ed.) Lewish Publishers. * Shurtleff, M.C., Averre III, C.W. (1997): The Plant Disease Clinic and Field Diagnosis of Abiotic Diseases.   recommended:  Klement, Z., Rudolph, K., Sands, D.C. (eds.) (1990): Methods in Phytobacteriology. Akadémiai Kiadó, Budapest. |

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| **Responsible lecturer: Dr. Gabor Tarcali PhD, senior research fellow** |
| **Other lecturer(s): Kitti Csüllög, PhD student** |

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| **Terms of course completion:** |
| 1. From diagnostics part written exam, (part) grade recommendation - based on ZH result. 2. Symptomatic exam (recognition of diseases at least 20 out of 25) during the last week of education. |
| **Form of examination:** |
| Oral examination |
| **Requirement(s) to get signature:** |
| Participation in lectures and practices. Regular preparation for practical training with periodic inspections. From diagnostics part written exam, (part) grade recommendation - based on ZH result. Symptomatic exam (recognition of diseases at least 20 out of 25) during the last week of education. **Oral examination** at the end of the semester in the theoretical part of general plant pathology. |

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| **Exam questions:** |
| 1. x 2. x 3. x 4. x 5. x 6. x 7. x 8. x 9. x 10. x 11. x 12. x 13. x 14. x |