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| **Title and Code** of the subject: **Horticulture MTMNO7010A** | **ECTS Credit Points: 3** |
| **Type** of the subject**: compulsory** / optional | |
| **Ratio of theory and practice: ../..** (credit%) **65 / 35** | |
| **Type and number of classes per semester**: 28 hour(s) lecture and 14 hour(s) practice per **semester**  Number of teaching hours / week : 2+1 (lecture and practice) | |
| **Type of exam**: exam / **practical course mark** | |
| **Subject in the curriculum:** semester **2** | |
| Preliminary requirements:- | |

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| **Summary of content - theory**: |
| Knowledge the modern growing technology of more considerable horticultural plant, ability to choice the optimal growing place, skill to define the factors which determine the quality and their application in the growing. The students know the raw material needs of processing industry and the fresh market and are capable of the selection of proper technology and varieties.  Characterization and development of horticultural production. Grouping of vegetables, according to a heat claim and the applied propagation methods. The characterisation of most important vegetable species. Fruit-growing in the world and directions of his development. Fruit-growing and his change of technology. New directions of the development. Grape growing, wine processing is his situation in the world, the tendencies of his change. Domestic wine-growing landscapes and wine-growing regions.   1. Importance, characterization and development of horticultural production 2. The grouping of vegetables according to a heat claim and the applied propagation methods. 3. The environmental claim of a tomato and sweet pepper their growing. 4. The characterisation of Cucurbitaceae crops – melons, cucumber, pumpkin, grafting vegetables 5. The characterisation of root vegetables - the growing of the carrot, parsley, beetroot and celery 6. The general characterisation of the onion, growing from seeds (one-year growing method) and from sets (two year method). 7. The environmental claim of a sugar pea and green beans, different types, growing. 8. The environmental claim of sweet corn, special types and growing. 9. Characterization of the major fruit species, growing regions and propagation 10. Establishment of fruit orchards, canopy formation 11. Cultivation, fertilization and irrigation of fruit orchards 12. Plant protection, harvest and storage of fruits 13. Importance of vine production, morphology, biological phases and propagation of vine 14. Establishment of vine orchards, cultivation methods |
| **Summary of content - practice**: |
| Skills to be learnt: They know the risk factor of plant cultivation and, if present, the possibilities of preventing and remedying economic and environmental damage.   1. Characterization of horticultural production 2. The roil of varieties – some variety selection criteria. 3. Vegetable transplant production. 4. Transplants hardening 5. Mulches and row covers. 6. Biodegradable mulches 7. High tunnels 8. Ventilation in freestanding high tunnels 9. Basic information for establishment of fruit orchard 10. Layout system of orchard 11. Weed management and integrated plant protection in orchard 12. The role of weather station installation in modern orchards 13. Plantation maintenance of grapes 14. Environmental problems and plant protection of grapes |
| **Literature, handbooks in English** |
| 1. **Sánchez, E. S. (2010):** Vegetable Gardening, The Pennsylvania State University, 64 p. <http://www.webgrower.com/regional/pdf/PA_Veg_agrs115.pdf> 2. **Ric Bessin, R. (ed.) (2012):** Vegetable Production Guide for Commercial Growers. Cooperative Extension Service • University Of Kentucky College of Agriculture, Lexington, 132 p. <http://www2.ca.uky.edu/agcomm/pubs/id/id36/id36.pdf> 3. **Parshant Bakshi V.K.Wali (2011):** Practical manual for fruit production. <https://www.researchgate.net/publication/270509577_Practical_manual_of_fruit_production> 4. Strik, B. C. (2011): Growing table grapes. https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/ec1639.pdf   **Recommended literature:**   1. **Kemble, J. M. (2020):** Vegetable Crop Handbook, Southeastern U.S.,355 p. https://www.aces.edu/wp-content/uploads/2019/12/2020\_SEVG\_final\_web.pdf 2. **Tree FruitProduction Guide. Pennsylvania 2012–2013.** <https://polk.extension.wisc.edu/files/2014/02/Tree-Fruit-Production-Guide-Penn-State-2013.pdf> 3. **Hamman, R. A. et al, (1998):** The Colorado grape growers' guide. Colorado State University, <https://extension.colostate.edu/docs/pubs/garden/550a.pdf> |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**  * Also knows the risk factors of plant cultivation, including harmful organisms, and in case of their appearance, the prevention and elimination of economic damage * Knows the mechanism of action of the plant protection products that can be used, their occupational and food hygiene and occupational safety regulations, and their environmental and human relations.  1. **Skills:**  * Able to synthesize the basic knowledge of agriculture, plant protection, natural sciences, technical, social sciences and economics acquired during the training in the field of agricultural science. * Able to apply plant protection methods that reduce the load of the plant protection product on the environment. * Ability to engage in scientific work in the field of agricultural sciences.  1. **Attitude:**  * Sensitivity and susceptibility to changes in the natural and economic environment. * Responsive and collaborative.  1. **Autonomy and responsibility:**  * The person is characterized by independent problem recognition and solution ability and creativity. * As a professional, he has the ability to make independent decisions and implement them. |

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| **Responsible lecturer: Mária Takács-Hájos CSc, associate professor** |
| **Terms of course completion:** |
| 1. Completing assignments / exercises 2. Submitting essay 3. Giving presentation |
| **Form of examination:** |
| **practical course mark** |
| **Requirement(s) to get signature:** |
| Presentation, report. Student may skip class maximum 3 times during the semester. |
| **Exam questions:** |
| 1. Characteristics of vegetable production, technologies promoting early production, cultivation methods – high tunnel.  2. Classification of the most important vegetable plant species according to heat demand and their propagation methods (direct sowing, seedling types, vegetative propagation).  3. Describe the aspects and operations of field selection and soil preparation in the cultivation of root vegetables, with special regard to the cultivation of carrots and celery.  4. Describe the propagating material of carrots and beets, the structure of root and the time of sowing for the autumn harvest.  5. Describe the possible time interval for sowing green beans, the row spacing and the number of germs used, as well as the plant care.  6. Describe and characterize the types of green peas, their environmental needs and the need for intermittent sowing.  7. Describe the environmental needs of the pumpkin species and their cultivation methods.  8. Describe the advantage and possible disadvantages of grafted melon seedlings in cultivation.  9. Describe the environmental needs of tomatoes and peppers, the method and time of propagation.  10. Describe the characteristics of growing one- and two-year-old onions.  11. Describe the characteristics of sweet corn cultivation.   1. Practical grouping of cultivated fruits. 2. Description of the grouping according to canopy formation and the differences between them. 3. Crown structure (traditional and intensive plantations). 4. The most important factors for determination of the place of plantation. 5. The relationship of the plantation microclimate with plant protection. Utilization of favorable conditions, elimination of adverse effects. 6. Plantation establishment. Effects of soil parameters, precipitation, wind, location, topography. 7. Presentation of the crown shapes used for each fruit and the advantages and disadvantages of their use. 8. Time, extent and effect of the nursing work on the condition. The relationship between plant condition and plant protection. 9. Plantation maintenance and plant protection of grapes. 10. Environmental problems and plant protection. |