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| **Title and code** of the subject: **Melioration and Land Consolidation, MTMVG7006A** | **ECTS Credit: 3** |
| **Type** of the subject: compulsory | |
| **Ratio of theory and practice:** (credit%) 70/30 | |
| **Type and number of classes per semester**: 28 hours lecture and 14 hours practice per **semester**  Number of classes per week: 2+1 | |
| **Type of exam**: exam | |
| **Subject in the curriculum:** semester 1 | |
| Preliminary requirements:- | |

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| **Summary of content - theory**: |
| Course objectives: To get acquainted with the technical tasks and works of land reclamation and land management activities related to agricultural water management, to learn the related theoretical and practical knowledge.   1. Melioration, Complex Land Development. 2. Atmospheric-, terrestrial-, hydro- and biomeloration interventions. 3. Regional water management. 4. Lowland water management. 5. Surface water management. 6. Subsurface water management. 7. Design and construction of drainage systems, reservoir systems and soil drainage systems. 8. Highland water management. 9. Agrotechnical, forestry and technological tasks of soil protection. 10. Water catchment management and water management of line-shaped features. 11. Regulation of small watercourses, river basins, protective structures, gully management. 12. Land consolidation (spatial planning). 13. Land consolidation (landscaping). 14. Field trip. |
| **Summary of content - practice**: |
| Skills to be learnt:  1. The aim of the exercise is for students to work on a topic related to melioration and land consolidation independently and then present them in an oral presentation form.  2. In addition, students can gain practical experience on professional field trips and business visits.  3. In the second half of the semester, students perform soil drainage and related calculations and planning. |
| **Literature, handbooks in English** |
| * A. V Al'benskij, P. D Nikitin, A Gourevitch: Handbook of Afforestation and Soil Melioration, Israel Program for Scientific Translations (January 1, 1967) ASIN: B006XBP6Y0- * Boris Stepanovich Maslov (ed.): Agricultural land improvement: a-melioration and reclamation, Eolss Publishers Co. Ltd., Oxford, UK, (2009) ISBN: 978-6 * Peter Waller and Muluneh Yitayew: Irrigation and Drainage Engineering, Springer, 2016, ISBN: 978-3-319-05698-2 * Rupesh Jarayam Patil: Spatial Techniques for Soil Erosion Estimation Remote Sensing and GIS Approach, Springer, 2018, ISBN: 978-3-319-74285-4 |
| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**  * Students possess the high level of natural sciences and technology knowledge necessary for cultivating agricultural water management. * Students know the applicability of the latest agricultural water management technologies and procedures and their legal regulation. * Students know in detail the specificities of agricultural water management and the processes taking place, know and recognize the relationships between them.  1. **Skills:**  * Students are able to apply and develop the latest agricultural water management technologies and procedures. * Students are able to define, plan and organize the activity system of the field. * Students are able to provide the necessary conditions for the implementation of the specified activities, to continuously manage and control the implementation, and to organize it. * Students are able to create a project team, be active participants in research and development projects.  1. **Attitude:**  * Students are committed to environmental protection and sustainable agriculture. * Students make their own professional opinions and are able to consistently represent their views.   **d)** **Autonomy and responsibility:**   * Students have a high degree of autonomy in developing comprehensive and specialized professional questions and representing professional views, while they show a high level of responsibility. |

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| **Responsible lecturer: Juhász Csaba, associate professor, PhD** |
| **Other lecturer(s): Erika Budayné Bódi, assistant lecturer, Bernadett Gálya, assistant lecturer** |

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| **Terms of course completion:** |
| 1. Completing assignment /exercises 2. Submitting essay 3. Giving presentations 4. Passing the examinations |
| **Form of examination:** |
| Written exam through the Electronic Curriculum Sharing and Examination System of the University of Debrecen (https://elearning.unideb.hu/), in a protected system under the university network. Final grade also depends on the grades got in practices/seminars. |
| **Requirement(s) to get signature:** |
| The students must attend the exercises, and absence can only be in accordance with the Study and Exam Rules of the University of Debrecen. Active participation in exercises is also a condition. Students have to perform a computational design examination task. |

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| **Exam questions:** |
| 1. Melioration, Complex Land Development. 2. Atmospheric-, terrestrial melioration interventions. 3. Hydro- and biomeloration interventions. 4. Regional water management. 5. Lowland water management. 6. Surface water management. 7. Subsurface water management. 8. Design and construction of drainage systems, reservoir systems and soil drainage systems. 9. Highland water management. 10. Agrotechnical, forestry and technological tasks of soil protection. 11. Water catchment management and water management of line-shaped features. 12. Regulation of small watercourses, river basins, protective structures, gully management. 13. Land consolidation (spatial planning). 14. Land consolidation (landscaping). |