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| Name of course: **Mechanization of crop production** | **Credit value: 3** |
| **Course** **classification**: compulsory | |
| **The proportion of the practical nature of the course, „educational character”: 50/50%** | |
| **Type of course: 28 hours lecture** and **28 hours practice** per semester  Total number: **56 hours** in the given semester.  Number of teaching hours / week : 2+2 (lecture and practice)  Further (unique) means and properties of knowledge transfer: farm visits, laboratory practices, field demonstrations | |
| **Exam** type (colloquium / practical grade / other):  **colloquium**  Further (unique) means of knowledge verification**: -** | |
| The curricular **place of the course** (which semester): semester 3 | |
| Prerequisites (if any): **-** | |

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| **Course description: a brief, but informative description of the knowledge to be acquired (14 weeks).** |
| The general aim of the subject:  To acquaint students with the equipment, tools, their operating principles, setting parameters and main parts used in the mechanization of crop production. Students will be become able to control the operation of machinery to plan work processes.  Topics:   1. Introduction, Internal combustion engines I. - Basics of internal combustion engines, petrol engines 2. Internal combustion engines II. - Diesel engines, auxiliary equipment of engines, electric motors 3. Tractors I. - Transmission system: clutch, gearbox, differential 4. Tractors II. - Walking gear, tractor-implement connection elements, cab, maintenance 5. Precision crop production I. - Basics: navigation systems, correction, steering 6. Precision crop production II. - Precision crop production solutions, outlook into precision livestock farming 7. Tillage machines 8. Nutrient management machines 9. Sowing machines 10. Mechanical knowledge of plant protection 11. Machines for harvesting cereals and oilseeds 12. Hay/fodder harvesting machines I. - Mowing structures, swath handling machines 13. Hay/fodder harvesting machines II. - Pick-up trailers, forage harvesters, baling, bale packing 14. Irrigation machines and equipment |
| **Required and recommended reading:** |
| **Required reading:**   * Learning materials of the lectures and practices * Herren, Ray V. Agricultural mechanics: Fundamentals & applications. Cengage Learning, 2014. ISBN: 128505895X   **Recommended reading:**   * Zhang, Qin. Precision agriculture technology for crop farming. Taylor & Francis, 2016. ISBN: 9780429159688 * Bell, Brian. Farm machinery. Fox Chapel Publishing, 2010. ISBN 1903366682 |
| **Competencies to be acquired, related to the course:** |
| **a) Knowledge:**  - Students are familiar the general and specific characteristics, boundaries, the most important development directions of their field of specialization, and its connection with other related fields.  **b) Skills:**  - Students are able to identify special professional problems with a versatile, interdisciplinary approach, explores and formulates the detailed theoretical and practical background needed to solve them.  **c) Attitude:**  - They strive to put the latest achievements in their field at the service of its own development.  **d) Autonomy and responsibility:**  - Independent planning and execution of activities. |

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| **Course leader** (name, post, academic degree): **Dr. Zoltán Hagymássy, PhD, associate professor** |
| **Other lecturer(s) involved in teaching the course, if any** (name, post, academic degree):  **Csaba Bojtor, assistant lecturer** |