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| Name of course: **Research methodology and extension** | **Credit value: 3** |
| **Course** **classification**: compulsory | |
| **The proportion of the practical nature of the course, „educational character”:** | |
| **Type of course:** 14theoretical / 14 practical, and the **total number: 28 hours** in the given **semester.**  Further (unique) means and properties of knowledge transfer: | |
| **Exam** type (colloquium / practical grade / **other** ):  **colloquium**  Further (unique) means of knowledge verification**:** | |
| The curricular **place of the course** (which semester): 4 | |
| Prerequisites (if any): **-** | |

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| **Course description: a brief, but informative description of the knowledge to be acquired (14 weeks).** |
| 1st week Specialities and errors of human learning. Methods of the knowledge collecting process.  2nd week The primary, secondary and tertiary research and their characteristics. The validity and scope of the research’s results.  3rd week Ethical questions of research work.  4th week Classification of the research work  5th week The research plan and the main possible errors in it.  6th week. Basic definitions of experiments. In vitro, in vivo experiments, field experiments.  7th week Experimental methods, planning field experiments.  8th week The aims of the field experiments, factors, variables, plots, treatments, repetitions.  9th week The accuracy of the experiment data, the determinant factors, homogeneity.  10th week Estimating the experimental error, and the difference between the treatments.  11th week Real and hidden replications. Computing the required repetition number.  12th week Design variations of single and multi-factor experiments, randomization.  13th week Case studies. Evaluation of experiment’s data.  14th week Agricultural extension systems |
| **Required and recommended reading:** |
| **Recommended reading:**   * Thomas C. G. (2021): Research methodology and scientific writing Springer ISBN 978-3-030-64864-0 * Cochran, W.G. – Cox, G.M. (1966): Experimental Designs, Wiley Publications, New York USA * Kumar, Ranjit (2005): Research methodology: a step-by-step guide, SAGE * Creswell John W. (2003): Research design: qualitative, quantitative, and mixed method approaches * Kothari C.R. (2009): Research Methodology: Methods and Techniques ISBN: 978-81-224-2488-1 |
| **Competencies to be acquired, related to the course:** |
| 1. **Knowledge:**  * Acquired basic knowledge of research methodology giving the basis for the research work * Acquired knowledge to up-to date methods used in scientific research and their practical application * Students will be able to proactively learn new skills and develop self for present and future progression * Students are capable to do adequate professional communication; can participate in the research process or in the extension system directly or support it; * Students actively and operatively attend to implementation of R&D projects  1. **Skills:**  * Ability in recognizing and solving the routine like problems occurring in the scientific research * Students can understand and observe the protocols and regulations connecting to the scientific research  1. **Attitude:**  * Main feature is the constructive approach to the professional questions * Students look for ways to change work methods to improve performance * Health of the individual and society beside of environmental protection plays an important part in the professional decisions  1. **Autonomy and responsibility:**  * Students are able to bear the responsibility of the decisions and responsible for own and the attached workforce’s work * Students are decisive at the right time * Based on the professional knowledge students can set up the implementation plan of R&D projects independently, and bear the responsibility of direct managing of the development activity |

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| **Course leader** (name, post, academic degree): **Dr. habil József Csajbók, associate professor, Ph.D.** |
| **Other lecturer(s) involved in teaching the course, if any** (name, post, academic degree): **-** |