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| Name of course: **Energy plant cultivation** | **Credit value: 3** |
| **Course** **classification**: | |
| **The proportion of the practical nature of the course, „educational character”: 50-50 (%)** | |
| **Type of course:1 practical and 1** theoretical the **total number: 28** 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): 3. | |
| Prerequisites (if any): **-** | |

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| **Course description: a brief, but informative description of the knowledge to be acquired (14 weeks).** |
| Course objectives:  1. General issues of energy crop production, green industry  2. Types of biomass plants (1st, 2nd and 3rd generation energy crops; biomass crop classification)  3. The basic concepts of energy crops, green industry, Bioindustries , bio-refineries  4. Woody biomass plants  5. Perennial and annual herbaceous biomass crops  6. Biorefineries, Bio-indusry  7. Plant propagating material of green industries, breeding of energy crops, aspects of species and variety use  8. Energy crops cultivation I. : soil preparation, energy crops palantation establishment.  9. Energy crops cultivation II: Nutrition, plant protection and harvest  10. Energy plant processing, development direction  11. Agricultural innovation priorities, N, water carbon and protein issue, multi-use energy crops,: by-product utilization, phytoremediation  12. Agronomic and economic relations of energy crop cultivation, current practice, development directions  13. The energy crop production characteristics of Hungary, Hungary biomass potential  14. New cell biology tools and complex, safe molecular biology technologies in energy crop production and breeding |
| **Summary of content - practice**: The knowledge to be acquired is concise, as well as a 14 week breakdown of practice. |
| Description of goal:  Training of enerdy crop production and breeding, who are in possession of an appropriate economic approach, they know the cultivation of plants, knows the variety and its importance.  Skills to be learnt: |
| **Required and recommended reading:** |
| **Required reading:**  Strezov, V., & Anawar, H.M. (Eds.). (2019). Renewable Energy Systems from Biomass: Efficiency, Innovation, and Sustainability (1st ed.). CRC Press. https://doi.org/10.1201/9781315153971  **Recommended reading:**  N. El Bassam (2010): Handbook of Bioenergy Crops 572 pp, ISBN 9781138975712, |
| **Competencies to be acquired, related to the course:** |
| 1. **Knowledge:**  * Knows, integrates, synthesizes and biomass crop production, biotechnology development also places the disciplinary knowledge of plant breeding in systems * Knows the mechanism of bioenergy supply chain, and as well as occupational safety regulations. * Knows biomass plant breeding strategies.  1. **Skills:**  * They will be able of integrated plant variety management against that pose a threat to plants planning and implementation. * They will be able to perform practical energy plant cultivation, administrative and other plant breeding management tasks.  1. **Attitude:**  * Has the necessary knowledge to perform engineering and managerial duties. * Susceptible and suitable for cooperation. * Their work is characterized by high standard. * They are able to stand up for their views, but are open to others’ opinions as well.  1. **Autonomy and responsibility:**  * They can recognize the risks and boundaries of their decisions. * They have an independent sense of professional responsibility. * They are fully aware that in a foreign environment they always represent their country, thus influencing the picture of it by their behaviour. |

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| **Course leader** (name, post, academic degree): **Dr. Erika Kurucz, assistant professor, PhD** |
| **Other lecturer(s) involved in teaching the course, if any** (name, post, academic degree): **Dr. Gabriella Antal, assistant professor, Phd.** |