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| **STUDY PROGRAMME:** | **Professional Undergraduate Study Programme *Agriculture***  Specific field of study: Management in Agriculture | |
| **Course:** | **FARM MECHANIZATION AND AUTOMATION** | |
| **Course code:** 273290  **Course status**: compulsory | **Semester: III** | **ECTS credits: 4** |
| **Course holder:** | **Miomir Stojnović,** M. Sc., senior lecturer | |
| **Course associates:** | **Vlado Kušec**, M. Sc.,senior lecturer  **Marija Jakuš Hrestak**, mag. ing. agr., assistant | |
| **Modes of delivery:** | **Number of hours** | |
| **Lectures** | 30 | |
| **Excersises,** | 30 | |
| **Practical training** | 15 | |

**Course objectives:** To enable students to acquire competencies for selecting and valorizing the expediency of using mechanization and automation of work processes on the farm.

**Course content**

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|  |  | **Modes of delivery:** | **Places of delivery** |
|  | **Course units** | **L, E, S, PT** |
|  | ***Introduction to the subject -*** the importance and role of mechanization and automation on farms, the specifics of using machines and equipment in agriculture. | 1 L | Classroom |
|  | ***Machines for tillage and fertilization***, the primary tillage, secondary tillage, machines for fertilizing with mineral and organic fertilizers. | 2 L, 4 E | Classroom, practicum |
|  | ***Sowing and planting machines,*** seeders for sowing in continuous rows, precision seeders, seedling and tuber planters. | 2 L, 4 E | Classroom, practicum |
|  | ***Machines for soil cultivation and plant protection,*** flat and inter-row cultivators, sprayers, atomizers and foggers. | 1 L, 3 E | Classroom, practicum |
|  | ***Machines for mowing and drying hay, machines for making silage and haylage -*** mowers, mower-conditioners, tedders and rakes, balers, hay handling equipment, hay dryers, self-loading trailers, forage harvesters, silage trailers, horizontal and vertical silos, | 2 L, 4 E | Classroom, practicum |
|  | Harvesting machines, universal grain harvester, corn pickers, potato harvesters, sugar beet harvesters | 2 L, 4 E | Classroom, practicum |
|  | ***Equipment for irrigation of agricultural crops,*** stationary and mobile devices, sprinkling, typhoon, micro sprinklers, drip system. | 1 L | Classroom |
|  | ***Machines and equipment on cattle farms,*** equipment for automatic cattle feeding, automation of microclimate maintenance, automatic waterers, automation of cow milking, machines and equipment for composting, biogas plants. | 1 L, 4 E | Classroom, practicum |
|  | ***Machines and equipment on pig farms -*** types of housing, microclimate, ventilation systems, heating and cooling systems, automatic feeding equipment, automatic waterers, manure handling equipment. | 1 L, 3 E | Classroom, practicum |
|  | ***Machines and equipment on poultry farms –*** types of housing, microclimate, ventilation systems, heating and cooling equipment, feeding systems, waterers, automatic egg collection systems, manure handling equipment. | 2 L, 4 E | Classroom, practicum |
|  | ***Planning the needs in the production of fodder*** with regard to the volume and type of livestock production, analysis of the state of mechanization on the farm, assessment of sufficiency, assessment of capacity, preparation of reports and presentations. | 15 PT | A family cattle farm,  Classroom |
| **In total** | | **30+30+15**  **(L+E+PT)** |  |

**L=Lectures, E=Excersises, S=Seminars, PT=Practical training**

**Learning outcomes (LO)**

LO 1. Assess the importance and specifics of the application of mechanized and automated processes on the farm.

LO 2. Present the construction and principle of operation of individual machines and equipment on the farm.

LO 3. Critically judge the expediency of applying mechanization and automation of work processes on a farm.

LO 4. Select the necessary capacities and structure of machines and equipment on the farm.

Course holder:

Miomir Stojnović, M. Sc., senior lecturer

Križevci, July 2024