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| **STUDY PROGRAMME:** | **Professional Undergraduate Study Programme *Agriculture***  Specific field of study: Plant production | |
| **Course:** | **FRUIT GROWING** | |
| **Course code: 273282**  **Course status:** compulsory | **Semester: V** | **ECTS credits: 6** |
| **Course holder:** | **Dragutin Kamenjak,** M.Eng.Agr., senior lecturer | |
| **Course associates:** | **Iva Šikač**, M.Eng.Agr., lecturer | |
| **Modes of delivery:** | **Number of hours** | |
| **Lectures** | 30 | |
| **Excersises** | 35 | |
| **Seminars** | 10 | |
| **Practical training** | 15 | |

**Course objectives:** Training students to independently organize sustainable fruit production in extensive or intensive orchard systems, understanding suitable agroecological conditions, the morphological characteristics of individual fruit species, and the physiological principles of growth, development, and fruiting of fruit trees.

**Course content**

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|  | **Course units** | **Modes of delivery:** | | | **Places of delivery** |
| **L** | **E** | **S** |
| 1. | The importance of fruit production in croatia and the world. Biology of fruit trees: Underground and above-ground organs of fruit trees.  Phenological stages of growth and development: flowering, pollination, and fertilization of fruit trees, fruit growth and development, harvesting. | 5 |  |  | Lecture Hall  Orchard / Experimental Farm |
| 2. | Ecological conditions for fruit cultivation: climate, soil, relief, inclination, exposure, altitude. | 3 |  |  | Lecture hall |
| 3. | Establishing an orchard: selection and preparation of the production area, procurement and preparation of seedlings, planting techniques. | 4 |  |  | Lecture hall |
| 4. | Pome Fruit: Apple, pear, quince - cultivation specifics, rootstocks and varieties, pomotechnics, and agrotechnics | 4 | 2 |  | Lecture hall |
|  | COLLOQUIUM I | 1 |  |  | Lecture hall |
| 5. | Stone fruit: Plum, peach, nectarine, apricot, cherry, sour cherry - cultivation specifics, rootstocks and varieties, pomotechnics, and agrotechnics. | 4 | 2 |  | Lecture hall |
| 6. | Nut Fruit: Walnut, hazelnut, almond - cultivation specifics, rootstocks and varieties.  Berry Fruit: Strawberry, raspberry, blackberry, currant, blueberry - cultivation specifics, rootstocks and varieties, pomotechnics, and agrotechnics. | 4 | 4 |  | Lecture hall |
| 7. | Subtropical Fruit: Olive, citrus fruits, fig, kiwi - cultivation specifics, rootstocks and varieties, pomotechnics, and agrotechnics. | 4 | 2 |  | Lecture hall |
|  | COLLOQUIUM II | 1 |  |  | Lecture hall |
| 8. | Methods of propagation for fruit trees: Generative and vegetative methods / grafting. |  | 3 |  | Lecture Hall  Orchard / Experimental Farm |
| 9. | Fruit tree cultivation systems and training forms: Spatial, planar, and directional cultivation. |  | 3 |  | Lecture Hall  Orchard / Experimental Farm |
| 10. | Pruning fruit trees: Techniques and timing / during winter dormancy and during the growing season. |  | 3 |  | Lecture Hall  Orchard / Experimental Farm |
| 11. | Grafting techniques for fruit trees. |  | 4 |  | Lecture Hall  Orchard / Experimental Farm |
|  | COLLOQUIUM I |  | 1 |  | Lecture hall |
| 12. | Maintaining soil fertility in orchards: Fertilization, soil management, irrigation. |  | 2 |  | Lecture Hall  Orchard / Experimental Farm |
| 13. | Physical-chemical and organoleptic properties of fruit |  | 5 |  | Lecture hall  Laboratory |
| 14. | Harvesting times, storage spaces, fruit storage. |  | 3 |  | Lecture hall  Laboratory  Cold storage |
| 15. | Seminars / field work on demonstration agricultural farms: Pomotechnics and agrotechnics of fruit trees in full production. |  |  | 10 | Outside the University of Applied Sciences |
|  | COLLOQUIUM II |  | 1 |  | Lecture hall |
|  | **In total** | 30 | 35 | 10 |  |
| **PT** | Formation of cultivation systems, pruning, and grafting of fruit trees:   * Orchard testing ground at the Križevci University of Applied Sciences   Field work in demonstration orchard and ULO cold storage:   * Familiarization and demonstration of fruit production and storage technology. | 15 | | | Practicum  Orchard / Experimental Farm  Outside the University of Applied Sciences |
|  |  | **L** | **E** | **S** | **PT** |
|  | **In total** | 30 | 35 | 10 | 15 |

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

**Learning outcomes (LO)**

LO 1. Argue the importance of fruit growing as a branch of agriculture and the characteristics of modern fruit cultivation.

LO 2. Determine and evaluate the environmental conditions for fruit cultivation.

LO 3. Present and argue the structure and basic physiological processes of growth and fruitfulness of fruit trees.

LO 4. Assess the suitability of variety, rootstock, and cultivation system for establishing orchards according to the requirements of different types of fruit.

LO 5. Present methods of fruit propagation and production of fruit seedlings.

LO 6. Select agronomic and pomotechnic practices in the orchard according to different phenological stages of growth and development, and evaluate the qualitative parameters of fruit.

LO 7. Organize the establishment of orchards and the cultivation of specific types: pome, stone, nut, berry, and subtropical fruits.

Course holder:

Dragutin Kamenjak, M.Eng.Agr.,senior lecturer

Križevci, July 2024