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| **STUDY PROGRAMME:** | **Professional Graduate Study Programme Agriculture – Sustainable and Organic Agriculture** | |
| **Course:** | **SUSTAINABLE FRUIT PRODUCTION SYSTEMS** | |
| **Course code:**  **Course status:** elective | **Semester:** II | **ECTS credits: 4** |
| **Course holder:** | **Ph.D. Branka Svitlica,** Asst. Prof. | |
| **Course associates:** | **Dragutin Kamenjak, Grad. Ing.,** senior lecturer | |
| **Modes of delivery:** | **Number of hours** | |
| **Lectures** | 20 | |
| **Excersises + seminars** | 20 | |

**Course objective:** To equip students with the skills needed to establish new orchards and organize the production of existing fruit orchards following the principles of sustainable, integrated, organic, and biodynamic production.

**Course content**

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| No. | **Course units** | **Modes of delivery:** | | **Places of delivery** |
| **L** | **E + S** |
| 1. | **Concepts of sustainable agricultural production / good agricultural practices (compliance rules), integrated, organic, and biodynamic fruit production, legal legislation, status, and perspectives in Croatia and worldwide.** | 2 |  | Lecture hall |
| 2. | **Prerequisites for growing continental and southern fruits according to sustainable production principles (climate, soil, relief), varieties, rootstocks, and cultivars (for commercial and resistant orchards), preparation of production area, orchard planting (methods and techniques).** | 3 | 2 | Lecture hall |
| 3. | **Structure and physiology of fruit, growing systems, fertilization, and soil maintenance, pomology and agronomy in sustainable fruit production systems (until full production stage and during peak production).** | 3 | 2 | Lecture hall |
| 4. | **Specific characteristics of sustainable growing systems for different fruit types (continental and southern).** | 2 | 3 | Lecture hall |
| 5. | **Identification and control of pests in fruits, acceptable control measures, permitted substances in integrated, organic, and biodynamic production according to specific regulations.** | 3 | 1 | Lecture hall |
| 6. | **Pathogenesis stages in fruit tree diseases (infection, incubation, fruiting), agrotechnical, mechanical, physical, and biological control measures in integrated and organic fruit protection, use of beneficial organisms for pest control (biological insecticides).** | 2 | 2 | Lecture hall |
| 7. | **Overview of fruit tree protection against major pests (apple codling moth, green apple aphid, powdery apple aphid, woolly apple aphid, red spider mite, leaf miner, fruit skin caterpillars, apple sawfly, scale insects, pear psylla). Overview of major fruit orchard diseases (apple scab, apple powdery mildew, pear scab, blossom and twig blight, fruit rot, bacterial blight, canker, peach leaf curl, plum sharka virus). Determining damage thresholds.** | 3 | 2 | Lecture hall |
| 8. | **Biological plant protection products on the market and plant strengthening agents, weed control in sustainable fruit production systems.** | 2 | 2 | Lecture hall |
| 9. | **Field practice at a model farm: familiarization with the organization and technologies of sustainable fruit production.** |  | 6 | Field Education Outside the University of Applied Sciences |
|  | **In total** | 20 | 20 |  |

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

**Learning outcomes (LO)**

LO 1. Argue the principles and legislation of sustainable fruit cultivation methods.

LO 2. Present the morphology and physiology of fruit.

LO 3. Evaluate production spaces and agroecological conditions for fruit cultivation according to sustainable cultivation standards.

LO 4. Select suitable species/varieties/clones, rootstocks, growing systems, pomology, and agronomy techniques for sustainable fruit cultivation.

LO 5. Organize the production of various fruit species based on sustainable cultivation principles.

LO 6. Anticipate and identify damage and harmful organisms in sustainable fruit cultivation.

LO 7. Maintain damage thresholds using combined protection methods in accordance with sustainable cultivation regulations.

LO 8. Organize fruit production protection following sustainable production principles, adapting to prevailing climate conditions and legal regulations.

LO 9. Critically assess production at a model integrated/organic farm and propose improvements if needed.

Course holder:

Ph.D. Branka Svitlica, Asst. Prof.

Križevci, July 2024