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| **STUDY PROGRAMME:** | **Professional Undergraduate Study Programme *Agriculture***  Specific field of study: Management in agriculture | |
| **Course:** | **PLANT PROTECTION METHODS** | |
| **Course code:** 273293  **Course status**: compulsory | **Semester: IV** | **ECTS credits: 3** |
| **Course holder:** | **Marijana Ivanek-Martinčić,** Ph.D., professor of professional studies | |
| **Modes of delivery:** | **Number of hours** | |
| **Lectures** | 25 | |
| **Excersises** | 15 | |
| **Seminars** | 5 | |

**Course objectives:** Introduce students to the most important characteristics of harmful organisms in plant production (pests, diseases, and weeds) and the methods and systems of plant protection against these harmful organisms. Using the example of corn protection, familiarize students with the protection measures for one agricultural crop based on the principles of integrated protection. Equip them to conduct crop protection against harmful organisms in an environmentally friendly manner.

**Course content**

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| **Course units** | | **Modes of delivery:** | | | **Places of delivery:** |
| **L** | **E** | **S** |  |
| 1. | Introduction to plant protection, importance of plant protection | 2 |  |  | Classroom |
| 2. | Types of pests in plant production |  |  |  | Classroom |
| 2.1. | Insects: morphology, anatomy, reproduction, and development of insects | 2 | 2 |  | Classroom |
| 2.2 | Systematics of insects – overview of the most important harmful and beneficial insects by orders |  | 2 |  | Classroom |
| 2.3. | Ecology of insects: abiotic and biotic factors | 1 |  |  | Classroom |
| 2.4. | Other harmful or beneficial animals in plant production (mites, rodents, birds, snails, nematodes) | 1 | 1 |  | Classroom |
| 3. | Introduction to phytopathology, non-parasitic diseases, causes of parasitic diseases | 1 |  |  | Classroom |
| 3.1. | Development cycle of plant diseases, disease triangle | 2 |  |  | Classroom |
| 3.2. | Environmental factors and disease development | 1 |  |  | Classroom |
| 3.3. | Fungi: morphology, reproduction, basics of systematics | 1 | 2 |  | Laboratory for testing the quality of agricultural reproduction material |
| 3.4. | Plant viruses: structure, reproduction, transmission, bacteria, phytoplasmas, etc. | 2 |  |  | Classroom |
| 4. | Weeds: classification, reproduction methods, critical period of weediness | 1 |  |  | Classroom |
| 4.1. | Weed identification |  | 3 |  | Plant Production Practicum |
| 5. | Plant protection measures: agrotechnical measures, quarantine measures, growing resistant varieties, mechanical measures, physical, biological, chemical measures | 3 |  |  | Classroom |
| 5.1. | Chemical measures in plant protection, advantages and disadvantages | 2 |  |  | Classroom |
| 5.1.1. | Plant protection products: classification and properties | 1 |  |  | Classroom |
| 5.1.2. | Use of the phytoinformation system with a list of registered plant protection products |  | 1 |  |  |
| 6. | Plant protection systems, principles of integrated plant protection | 2 |  |  | Classroom |
| 6.1. | Methods for predicting the occurrence of harmful organisms |  | 2 |  | Plant Production Practicum |
| 7. | Corn protection from pests |  |  |  |  |
| 7.1. | Corn pests and protection methods | 1 |  |  | Classroom |
| 7.2. | Corn diseases and protection methods | 1 |  |  | Classroom |
| 7.3. | Weeds in corn and their control | 1 |  |  | Classroom |
| 7.4. | Identification of harmful organisms in corn cultivation, assessment of soil pest abundance |  | 2 |  | Plant Production Practicum |
| 7.5. | Measures for protecting corn from harmful organisms |  |  | 5 | Classroom |
|  | **IN TOTAL** | **25** | **15** | **5** |  |

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

**Learning outcomes (LO)**

LO 1. Present the main characteristics of pests, plant disease agents, and weeds in plant production

LO 2. Identify the most important weeds in agricultural production

LO 3. Present plant protection measures and systems, especially the integrated protection system

LO 4. Identify the advantages and disadvantages of chemical measures in plant protection

LO 5. Recommend protection measures for an agricultural crop based on the principles of integrated protection, using corn protection as an example

Course holder:

Marijana Ivanek-Martinčić, Ph.D., professor of professional studies

Križevci, July 2024