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| **Study programe:** | **Professional undergraduate study Programme *Agriculture*** Specific field of study: Management in agriculture |
| **Subject:** | **VEGETABLE PRODUCTION** |
| **Code:** 239980**Status**: compulsory | **Semester**: IV | **ECTS credits: 7,5** |
| **Holder:**  | **Tomislava Peremin Volf,** M. Sc., senior lecturer |
| **Associates:**  | Martin Bužić, M.Eng.Agr.. |
| **Modes of delivery:** | **Number of hours**  |
| Lectures | 45 |
| Exercises | 35 |
| Seminars | 10 |
| Professional practice | 22 |

**Course objectives:** to train students for the independent production of vegetables outdoors for a specific purpose (fresh market or processing).

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|  | **Course units**  | **Modes of delivery:** | **Places of delivery** |
| **L** | **E** | **S** |
| **1.** | Introduction to the course: aim and task of the course, content of the course, necessary literature, method of testing knowledge. | 1 | **-** | **-** | lecture hall |
| **2.** | Importance of vegetables in human diet.Basic features of vegetable growing as an economic branch. | 1 | - | - | lecture hall |
| **3.** | Peculiarities of Croatian vegetable production: structure of production, agroecological conditions, state samples and measures to improve vegetable production in Croatia. | 1 | - | - | lecture hall |
| **4.** | Conditions for establishing vegetable production: market, climate, soil, fertilization, water and labor force. | 3 | - | - | lecture hall |
| **5.** | Botanical and economic division of vegetables | 1 |  | - | lecture hall |
| **6.** | Knowledge of vegetable crops in the stage of technological ripening  | - | 2 | - | lecture hall |
| **7.** | Getting to know the seeds of vegetable species | - | 2 | - | lecture hall |
| **8.** | Assortment and seed production of vegetable crops | 1 | - | - | lecture hall |
| Oral colloquium - knowledge of vegetable species and their seeds, botanical affiliation | - | 2 | - | lecture hall |
| **9.** | Protected areas in the cultivation of vegetables: types of protected areas and their purpose. | 1 | - | - | lecture hall |
| **10.** | Cultivation of seedlings: cultivation of bare root seedlings and cultivation of seedlings with a lump of substrate around the roots. | 3 |  | - | lecture hall |
| **11.** | Determining the amount of seed for sowing when growing from a seedling | - | 2 | - | lecture hall |
| **12.** | Sowing for growing seedlings (onions, celery, cabbage, lettuce, tomatoes, peppers, eggplants, cucumbers, zucchini, melons and watermelons, leeks...)  | - | 4 | - | Prakticum |
| **13.** | Direct sowing of peas, radishes, spinach, carrots, parsley, parsnips, beets, Swiss chard and onions, as well as cucumbers, zucchini and beans. | - | 4 | - | Prakticum |
| **14.** | Fertilization of vegetable crops (types of fertilizers, determining the required amount of fertilizers) | - | 2 | - | lecture hall |
| 1. Knowledge test (written) – general vegetable growing | 1 | - | - | lecture hall |
| **15.** | Cultivation of bulbous vegetables (onions, garlic and leeks) - basic features and nutritional value, morphological and biological properties, climate and soil, crop rotation, selection of varieties, tillage and fertilization, sowing, planting, care measures during the growing season, harvesting and yields, storage . | 2 | 1 | 1 | lecture hallPracticum  |
| **16.** | Asparagus cultivation: Basic features and nutritional value, morphological and biological properties, climate and soil, crop rotation, selection of varieties, tillage and fertilization, seedling cultivation, planting, care of asparagus beds, harvesting and yields, packaging and storage. | 1 | - | - | lecture hall |
| **17.** | Cultivation of vegetables from the Brassicaceae family (cabbage, kale, collard greens, cauliflower, broccoli, kohlrabi, Chinese cabbage, radish, horseradish) - basic features and nutritional value, morphological and biological properties, climate and soil, crop rotation, selection of varieties, tillage and fertilizing, calculating the required amount of seeds and seedlings, sowing, planting, care measures during the growing season, harvesting and yields, storage.  | 7 | 4 | 3 | lecture hall Practicum |
| **18.** | Cultivation of vegetables from the Solanaceae family (tomatoes, peppers, eggplants) - basic characteristics and nutritional value, morphological and biological properties, climate and soil, crop rotation, selection of varieties, tillage and fertilization, calculation of the required amount of seeds and seedlings, sowing, picking, planting , care measures during the growing season, harvesting and yields, storage. | 5 | 4 | 1 | lecture hall Practicum |
| 2. Knowledge test (written) - cultivation of bulbous vegetables, asparagus and vegetables from the Brassicaceae and Solanaceae families | 1 | - | - | lecture hall |
| **19.** | Cultivation of vegetables from the Cucurbitaceae family (cucumbers, melons, watermelons, pumpkins) - basic features and nutritional value, morphological and biological properties, climate and soil, crop rotation, choice of varieties, tillage and fertilization, calculation of sowing rate, sowing, planting, care measures during the growing season, harvesting and yields, storage.  | 4 | 3 | 1 | lecture hall Practicum |
| **20.** | Cultivation of vegetables from the Apiaceae family (carrots, parsley, parsnips, celery) - basic characteristics and nutritional value, morphological and biological properties, climate and soil, crop rotation, choice of varieties, tillage and fertilization, calculation of sowing rates, sowing, planting, care measures during the growing season, harvesting and yields, storage. | 3 | 11 | 1 | lecture hall Practicum |
| **21.** | Cultivation of vegetables from the Fabaceae family: Basic features and nutritional value, morphological and biological properties, climate and soil, crop rotation, choice of varieties, tillage and fertilization, calculation of sowing rates, sowing, care measures during the growing season, harvest and yields, storage. (peas, beans, green beans) | 3 | 1 | 1 | lecture hall |
| **22.** | Cultivation of vegetables from the Asteraceae family: Basic characteristics and nutritional value, morphological and biological properties, climate and soil, crop rotation, tillage and fertilization, selection of varieties, calculation of the required amount of seeds and seedlings, sowing, planting, care measures during the growing season, harvesting and yields , storage. (lettuce, endive, radicchio, artichoke) | 3 | 1 | 1 | lecture hall |
| **23.** | Cultivation of vegetables from the Chenopodiaceae family: Basic features and nutritional value, morphological and biological properties, climate and soil, crop rotation, tillage and fertilization, variety selection, sowing, crop care, protection against diseases and pests, harvesting and yields. (spinach, beets, Swiss chard) | 2 | 1 | 1 | lecture hall Practicum  |
| 3. Knowledge test (written) - growing vegetables from the botanical families Cucurbitaceae, Apiaceae, Fabaceae, Asteraceae and Chenopodiaceae | 1 | - | - | lecture hall |
|  | **TOTAL HOURS** | **45** | **35** | **10** |  |

Forms of teaching: L=lectures; E=exercises; S=seminars,

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|  | **Practical training** | **hours** | **Venue** |
| 1. | Field work | 3 | outside university |
| 2. | Professional practice (sowing, planting, care measures during the growing season and harvesting of vegetable crops grown in the practicum) | 14 | Practicum |
| 3. | Integrated project task\* - participate in the production of a given vegetable crop from sowing to harvest and monitor the impact of different production methods or different assortments on yield and quality (or organize the production of a certain vegetable crop for the given delivery dates). Presentation of the integrated project task. | 5 | Practicum lecture hall |
|  | **Total practical training** | **22** |  |

**4. Learning outcomes (LO)**

**After passing the exam, the student will be able to:**

LO 1. Analyze the features of vegetable production

LO 2. Identify vegetable crops in the stage of technological ripening and their seeds

LO 3. Evaluate the advantages and disadvantages of different ways of growing vegetable seedlings

LO 4. Determine the required amount of seeds and/or seedlings and the required amount of fertilizer for the production of the selected vegetable crop.

LO 5. Choose a variety or hybrid for a specific purpose, area and terms of cultivation

LO 6. Independently organize the production of the selected vegetable crop

Course holder:

Tomislava Peremin Volf, M.Sc., senior lecturer

Križevci, July 2024