

Courses in English

Bachelor Study

Code	Course	Semester	ECTS	Course content
621Z003	<u>Agricultural Water Management</u>	WS/SS	6	Definition and types of amelioration, water in the landscape and in the soil, soil water regime regulation. Drainage - the task, types, service, agrotechnical arrangements. Irrigation - the task, impact, crop water needs, irrigation regime management. Small water reservoirs - meaning, placement and function in the landscape, water management balance. River modification, flood control of agricultural landscape.
Z15-0008-B	<u>Agrohydrology</u>	WS	6	Analyses and water movement studies in agricultural landscapes from the point of view of water dynamics in the soil-plant-atmosphere system. Hydrological balance of soil surface and root zone of soil profile. Basic engineering calculations and methodology for practice application of theoretical knowledge on water management and landscape protection. Basic modelling of water and nutrients in soil profile.
Z15-0137-B	<u>Ateliers of Garden and Parks Creation</u>	WS/SS	8	Practical introduction to the various levels of project documentation for building permit stage. Subject knowledge is synthesized compositions, art principles and knowledge of the principles of the use of plant and construction materials. Based on theoretical knowledge, students propose concrete solutions adaptation of family gardens in the implementation scales (1:500, 1:200 and 1:100).
Z15-0129-B	<u>Basics of Horticulture</u>	SS	4	The actual situation and perspective of horticultural crops cultivation. Ecological, natural and soil conditions for cultivation of vine grape, fruit plants, vegetable and selected flower species and their regionalisation. Their importance for human nutrition and health. Basics of reproduction of fruit plants and vine grape. Basics of agrotechnique, application of new cultivation technologies, including nutrition, fertilization and irrigation of horticultural crops.
Z15-0047-B	<u>Basics of Forestry</u>	SS	6	Information about forest ecosystem, about gradual changes of the forest communities. Information about structure and characteristics of the forest ecosystem. Basic principles of the forestry management in Slovakia. Developmental processes of the natural forest ecosystems. Conservation and enhancement of the forest genetic resources in Slovakia. On lessons students are familiarized with methodology of the provenance trials, with techniques of the forest establishment and silvicultural methods as well as with utilization

				of the informations from the Forest Care Program
Z15-0097-B	<u>Basics of GIS</u>	SS	4	Basic concepts of GIS, geographic data - components, data models, spatial data, vector and raster. Input data. Data management. Data analysis. Outputs data. Map composition. Pallets and symbols. Database queries, topological overlay, map algebra, distance analysis, digital elevation model - creation and utilization, network analysis. Outputs data, creation of map composition.
Z15-0022-B	<u>Dendrology -- Broad-leaved Trees</u>	WS	6	Morphological, systematic and ecological characteristics of deciduous broadleaved domestic and exotic woods. Basic morphological features of trees and their importance for mutual differentiation and systematic distribution. Characteristics and properties of trees, spatial and functional division of trees the conditions of application and development of healthy plants in landscaping / 400-600 taxa /. Practical learning in a leafless foliage condition.
Z15-0021-B	<u>Dendrology -- Coniferous Wood Plants</u>	SS	6	Morphological, taxonomical and ecological characteristic of conifers and evergreen woody plants and their usage in garden and landscape architecture. Characteristics and properties of woody plants, space and function classification of woody plants.
Z15-0043-B	<u>Design in Garden Floriculture</u>	WS/SS	6	Current trends and possibilities of using herbs in landscaping design. Annual landscaping: location, planning and the corresponding assortment. Possibility of applications bulbs and tuberous plants due to their specific characteristics in combination with other groups of plants. Perennial landscaping and proposal of specific type locations (undergrowth trees, open areas, rockery, the water and the edge of water, etc..). Planning, implementation and maintenance of perennial beds and borders. Flowerbeds in historical field.
Z15-0075-B	<u>Environmental Quality Assessment</u>	WS	6	Biotic and nonbiotic parts of the environment and antropic influence on environment. Monitoring of the environment and information system about environment. Legislation about environment. Rate the quality of abiotic parts of environment (pedosphere, hydrosphere, atmosphere). Biotic and no biotic parts of the environment and anthropic influence on the environment. Monitoring of the environment and information system about environment. Legislation about environment. Rate the quality of abiotic parts of environment (pedosphere, hydrosphere, and atmosphere). Biotic environment parts assesment – fauna, flora with accent to high scattered vegetation and nature protection. Impact of waste on the environment. Impact of chemicals (mainly agriculture) on the environment. Environment modalities in practice – environmental impact assesment – EIA and Environmental management system implementation.

Z15-0046-B	<u>Foundation and Maintenance of Verdure</u>	SS	6	Technologies of establishment and maintenance of plants and herbs beds. Treatment of the properties of the soil before planting of turf and beds of woody plants and herbs. Turf seeding, laying, hydro-seeding and turf establishing in prefabricated blocks. Maintenance of grass areas. Conditions and limits of trees and herbs planting technologies. The quality of the materials, techniques of planting in relation to a generic group claims. Biological principles of trees and shrubs cutting. Techniques of woody plants cutting. Establishment and maintenance of hedges, beds of roses, heather and climbing plants, flower beds and specific types of greenery.
Z15-0102-B	<u>Fruit Growing</u>	WS	6	Importance and history of fruit growing, botanic and economic classification of fruit species, biological characterization of fruit species, pollination schemes and pollination management, propagation, growth and development of fruit plants, fruit set regulation, fruit plants and environment, regulation of microclimate in fruit orchards, soil management, fertilization, irrigation, fruit harvesting.
Z15-0164-B	<u>Garden and Landscape Drawing</u>	SS	5	Design of architectural plans. Pencil drawing. Pen drawing. Graphics techniques. Image of landscape plan. Drawing of greenery signs. Scale of landscape plans. View and cut drawing. Methods of spatial imaging - perspective, axonometry, drawing in photo. Landscape models. Colour drawing. Principles of drawing trees, shrubs and herbs. Architectural drawing, perspective. The human figure drawing. Stylized drawing in architectural plans. Stylized drawing of greenery, figure, furniture. Landscape plans adjustment.
Z15-0038-B	<u>Garden Floriculture</u>	SS	6	Circumstantial learning assortment of herbs used in garden and landscape design. Characteristic core group of herbs: annuals, perennials, bulbous and corm plants, ferns, grasses, etc.. Origin and characteristics of individual genera and species of plants. Evaluation of cultivars assortment. Requirements of individual groups on garden habitats.
Z15-0010-B	<u>Hydrology</u>	WS	6	Students understand the basic knowledge on rules of occurrence, circulation and spatial distribution of water on the Earth.

Z15-0049-B	Hydromechanics	WS/SS	6	Hydromechanics - basic knowledge of laws and regularities of still and the motion of liquids, especially water - surface and groundwater. Hydrostatics - physical properties of liquids, the pressure in the fluid pressure force on a flat surface, swimming and stability of floating solids, liquids relative calm. Hydrodynamics - the basic concepts of flow and distribution, basic laws of hydromechanics, continuity equation, Bernoulli's equation, the energy density gauge, hydraulic losses, and turbulent and laminar flow. Chézy's equation, the pressure flow in pipes, small and large discharge opening, filling and emptying tanks, overflow water through the spillway, uniform and non-uniform flow in open channels, solution design and stock. The flow of groundwater - the fundamental law of laminar filtration, free-flow steady flow of groundwater hydraulic calculation of vertical detention facilities.
Z15-0011-B	Hydropedology	WS	6	Soil forming processes, factors and laws affecting soil formation. Soil functions, soil classification and systematics. Basic physical and hydrophysical characteristics of the soil. Statics and dynamics of soil water. Hydrolimits. Water infiltration into the soil. Water balance in the soil. Soil management.
Z15-0061-B	Irrigation Technology	WS	4	Water sources, their preparation, operation and capacity, appraisal of quality and irrigation water. Water quality for localized irrigation. Pumping techniques, automatics of pumping stations, subsurface irrigation network. Irrigation detail and criteria of its choice, parameters of irrigation equipment. Technology of permanent cultures irrigation. Purpose and necessity of irrigation. Moisture necessity and irrigation regimes. Assessment of irrigation amount and the term of its application. Cultivation systems of field crops in irrigation conditions. Irrigation of vegetable and special crops, their individualities. Multi-purpose exploitation of special crops irrigation. Irrigation regime of fruit tree species, soft fruit, vine and hop.
Z15-0050-B	Landscape Engineering and Law	WS	3	Right on the Environment of the Slovak Republic - history, the role of the current state. EU law protection of the environment - the history, current status, comparison of the two legal systems. Analysis of the most important laws on environmental and land - laws on soil, water, air, forest protection, soil and waste management, the role of the state in creating and legislative changes in the environment. The role of municipalities and non-profit organizations in the protection of the environment.

Z15-0045-B	Landscape gardening	SS	6	Theoretical training consists of lectures (2 hours per week) practical lessons (2 hours per week) semestral work, determining the types of herbarium items and leafless branches, literature studies and verification of knowledge: test (nomenclature, ecological requirements, land use development, morphology). The test is in written and oral form (60 points). Determination of herbarium items and leafless branches (40 points).
Z15-0079-B	Landscape Planning	WS	4	Goals and aims of landscape planning its place in legislative. Development of biological and landscape planning in the world and in Slovakia. Landscape functions and potentials. Loading, sensitivity, carrying capacity and landscape stability. Stress factors in landscape. Regulations and limits in landscape planning. Landscape plan (LANDEP), its system and methodical model approaches. Analyse of elements and components in landscape structure. Synthesis of ecological landscape properties, creation of landscape ecological complexes (LEC). Landscape ecological interpretation of utility landscape properties according to LEC groups. Landscape evaluation-convenience of LEC collections for different human activities. Propositions in LANDEP and its levels. Territorial system of ecological stability (TSES), the principles and importance. TSES levels and content the methods for elaboration. Analytical and outputs maps from TSES. Specific characteristics of local TSES. Application of LANDEP and TSES in planning processes.
Z15-0110-B	Oenology	WS	6	The economic importance of wine production. Basic winemaking terminology. Classification of viticulture products according to viticulture legislation. Allowed adjuvant and additive agents, technological processes for the production of wine, permitted limits of substances in wine. Production facilities and equipment for grapes processing, must fermentation, treatment and storage of wine. Treatment of must before fermentation. Spontaneous and controlled alcoholic fermentation and its products. The biochemical and physicochemical processes affecting the maturation of wine. Clarification and stabilization of wine. Application of fine and stabilizing agents. Filtration of wine. Hygiene of facilities and equipment in the winery. Utilization of by-products and waste materials.
Z15-0159-B	Parks and Garden Design	WS/SS	5	Classification of park green in intravilan settlements and their interest in the area. Compositional principles of designing and care of individual types of vegetation parks. Principles of creating city parks and park areas of public importance, central city zones, street green areas, greening of public administrative buildings, creation and revitalization of interglobal green. Greenery of school and preschool facilities, greenery of hospitals, sanatoriums and baths, gracious greenery. Leisure facilities and facilities, sports fields, playgrounds. Greens of other civic amenities.

Z15-0101-B	<u>Practical Course of Vine Pruning</u>	SS	2	Basic and additional ways to cut of vine plants (pruning) and vine training, the physiological bases of cut vine. The practical performance of vine pruning and training in a vineyard.
Z15-0056-B	<u>Protection Against Natural Catastrophes</u>	SS	4	Overview of main natural disasters and their consequences. The situation in the disaster risk, organization of protection of population and individual responsibilities of state organizations. Quantifying the harmful potential. The earthquake process. Formation and distribution of floods and protection against them. Formation and distribution of avalanches and protection against them. Landslides, their causes and protection against them. Storms and protection against them. The occurrence of long periods of drought and ways of ensuring water deficit. Disasters caused by extraterrestrial causes. Historical overview of disaster cosmic origin. Legislation relating to the protection of populations against natural disasters.
Z15-0032-B	<u>Protection of Ornamental Plants</u>	WS	6	Animal pests and fungi diseases of indigenous and introduced ornamental woody plants /coniferous, deciduous, evergreen plants/ and herbaceous plants /perennials, annuals, glasshouse and indoor plants/. biology, bionomy, symptomatics, diagnostics, defence and protection against to the most important pests and diseases.
Z15-0161-B	<u>Spatial Composition</u>	SS	4	Solution of assignments with an emphasis on the fulfilment of the predetermined meanings of the composition and the intentional use of the compositional principles applicable in garden-architectural creations and landscaping.
Z15-0120-B	<u>Spices and Aromatic Plants</u>	WS	6	Student gains knowledge about importance of spices in the nutrition, their origin and substances, especially spices by its phylogenetic development native from a geographical temperate. Students also acquire knowledge about the cultivation agrotechniques, harvest, post-harvest treatment, as well as an evaluation of their quality characteristics, assessing and application in the market.
Z15-0108-B	<u>Technologies of Fruit Woods Nursery</u>	SS	6	Fruit nursery as a part of the fruit production. Enactments for fruit nurseries. Common and special demands and conditions of fruit nurseries. Generative and vegetative propagation of fruit species. Development of unconventional propagation methods and their perspectives. Rootstock propagation techniques and their specific relation with

				grafted cultivars. Organization and working processes in fruit nurseries.
Z15-0167-B	<u>Theory of Garden and Park Design</u>	SS	5	The theory of park creation in the context of biological and ecological disciplines. Fundamentals of garden aesthetics and composition. Specialties of garden composition, forms of order, interest and psychological program of park composition. Importance of field modelling and its influence on greenery. Water as an important element of garden and park treatments. Compositional properties of living elements, technical and architectural elements in garden compositions. Colour, light, texture, structure, size, shape.
Z15-0130-B	<u>Vegetables Production</u>	SS	6	The actual situation and perspective of development of vegetable production in Slovakia. Vegetable quality in relation to Food Codex of Slovak republic. Natural, ecological conditions of vegetable cultivation. Technological systems of cultivation of field vegetable, including precultivation of seedlings of some species and varieties for spring, summer and autumn cultivation. Rotations of crops in relation to small-scale production and mass (farm) cultivation system. Vegetable cultivation by new technologies and using of mulching and covering materials at cultivation of field vegetable. Classification of vegetable products according to market demands and also classification into quality classes with possibility of affection of consumable vegetable fytomass with using of biological specifics of cultivated vegetable species.
Z15-0113-B	<u>Viticulture</u>	WS	6	History and distribution of wine production in the world and in Slovakia. National Economic importance of viticulture. Systematics, biology vine, vine growth and development. Abiotic and biotic factors in cultivation. Reproduction grape vine production grafts. Construction of vineyards. Technology vine growing - cut a vine management, tillage, fertilization, irrigation and protection of the vine. Harvesting grapes. Assortment of wine grape varieties grown in the country.
Z15-0064-B	<u>Water Management</u>	WS	4	Water management - concept, purpose, content, significance and role in the national economy and the environment. Water resources, the possibility of rational use and protection from depletion and pollution. Regulating surface water runoff and protect agricultural land from the damaging effects of water. Impact hydroamelioration systems on the environment. Organization of water management, the legislative and technical rationalization. International relations and cooperation in water management.

Z15-0096-B	Wind erosion of soil	SS	4	Range and harmfulness of wind erosion. Theory of soil parts movement caused by wind. Factors that affect intensity and process of wind erosion: soil factors, climate factors, geographical factors, anthropological conditions. Methods of soil erodibility by wind. Soil protection before wind erosion: organization control measures, agro technical control measures, soil structure treatment and improvement of soil water management on lightweight soil, special agricultural control measures, technical measures, planting trees and windbreaks.
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