

Courses in English

Master Study

Code	Course	Semester	ECTS	Course content
Z15-0140-I	Ateliers of Special Green Space Design	WS/SS	5	To attend this subject it is necessary to pass Ateliers of private gardens, Ateliers of public greenery creation, Theory of garden design, Park creation and Dendrology I. and II. The aim of the subject is to analyse chosen territory from the several points of view. According to the analyses students will do landscape and architectural proposal of the chosen area, which should be from the category of the restricted verdure (it means different types of the school areas, hospitals, botanical gardens, cemeteries,...). Project will reach documentation in realization scale.
Z15-0020-I	Biotechnics of Landscape Verdure	WS	6	The riparian vegetation, windbreaks, green shelterbelts. The landscape greenery used for redevelopment and revitalization of the devastated areas. Functional and spatial specificities of the scattered greenery. The criteria for selection of the suitable woody plants for landscape greenery. The methods and technologies of the establishment and maintenance of landscape greenery. The specificities in regeneration of the landscape greenery and techniques used for these purposes. Revitalization of the landscape greenery. Technologies and techniques of revitalization, which are applied on areas damaged by agricultural and industrial activities. Within the course are 15 hours of the field exercise.

Z15-0143-I	<u>CAD in Garden and Landscape Creation</u>	SS	4	The subject of "CAD in Garden and Landscape Design" is an applied discipline, the content of which is focused on the use of IT in the field of gardening and landscaping. The subject is based on the application of the vector graphics editor EAGLEPOINT / VectorWorkx-Landmark and learning process is divided into two phases. In the first phase students learn to work with 2-dimensional space and create ground-based documentation (garden landscapes drawings) with efficient (automated) design elements (plant databases, automated plot reports, etc.). This phase is followed by spatial modelling and visualization of spatial object compositions. The visualization techniques are applied to the created model in the last stage in order to achieve an adequate graphic output for the appropriate level of detail.
213Z403	<u>CAD in Landscape Engineering</u>	WS	4	User interface and system options of AutoCAD, work with layers, drawing tools, editing tools, dimensions, text tools, external references, layout properties, work with original project drawings and creation of the projects of the water management buildings in CAD environment.
Z15-0171-I	<u>Design Principles of Public and Recreational Areas</u>	SS	8	The history of spaces for recreation in the urban structures and current possibilities for recreation in the cities and contact zones. Public spaces in urban structures. Terminology, Definitions, typology of public open spaces. The basic standards and criteria. Recreation in the forest and country, general information, laws and legislation, trends. Assessment of recreational potential of the landscape – different methods and approaches. Analytical methods and their integration. Evaluation and interpretation. Application in practice – spatial planning. Compositional principles and design of spaces for recreation. Trends Affecting Outdoor Recreation. Public spaces in history and current importance in Urban Structure in the context of spatial planning. The Importance for social development and the promotion of social ties. Compositional principles of the paths connection, the principles of creation of educational trails. Design in the urban environment. Sustainable design. The current situation. New approaches in the development of public space – differences between urban and rural settlement. Examples of modern and efficient public spaces. The importance of recreation and leisure in society. The impact of recreation on the environment.

Z15-0089-I	Environmental Impact Assessment	WS/SS	4	History, development of environmental impact assessment and reasons for its implementation to Slovakian law system. Characteristics and structures of Law No. 24/2006 about environmental impact assessment. Methodical procedure of environmental impact assessment of strategic documents (policies, conceptions, plans, programs), documents with whole state impact and environmental impact assessment that exceed state boards. Methodical procedures and methods of activity environmental impact assessment (constructions, facilities, activities) to the environment – subjects of assessment, activities to be assessed, basic steps of environmental impact assessment.
Z15-0071-I	Environmental Management Systems	WS/SS	6	Environmentalistics – basic ideas, environment – factors, characteristics, organization approach to environment. E – policy, strategy, rules and priorities of the state environmental policy, National environmental action plan, European environmental policy (voluntary task). The documents of state environmental policy – environmental notes, the sources of the information. Risk management, ecological and health risk evaluation, management (voluntary task). Integrated pollution prevention and control - movie watching. Life cycle assessment, the phases of LCA, the value of LCA evaluation - movie watching. Definitions and characteristics of cleaner production, the tool for cleaner production evaluations, eco-design - movie watching. Environmental management – basics, advantages of environmental management - - movie watching. The system of environmental management, Deming’s model, The structure of ISO 1400X. The projecting of environment management system – planning, implementation and management, general requirements, control tasks, Environmental audit (part of the seminar project). National systems of environmental labelling, environmental labels and proclamations, the institutions of E-evaluation and labelling (voluntary task). Environmental management system and ISO 9001, the differences between EMS and EMAS, EMAS requirements, Eco balance in E-management, evaluation of environmental performance, environmental indicators selection. Environmental report – definition, meaning, the progress (part of the seminar project), Environmental assessment of sites and organizations.

Z15-0052-I	Forest amelioration Techniques	SS	4	The importance of the protection, reclamation and amelioration of mountain regions. Climatic and topographic conditions of forests in Slovakia- water cycle in nature, particularities of the rainfall, the impact of topography on wind conditions, the possibility of use of land resources of mountain areas. Water conditions - drainage conditions, water balance in the catchment and its assessment, hydrological role of forests, rivers flow. Flow regime of torrents, channel morphology, bed load characteristics, bed load discharge calculation, design of stable channel of torrent. Adjustment of drainage conditions in the catchment - the use of forests, forest streams rehabilitation. Gullies stemming. Landslides and its stabilization - causes of landslides, methods of stabilization. Biotechnical measures in the catchment streams. Snow conditions and their effects - formation of avalanches, avalanches control measures.
Z15-0068-I	GIS Application	WS	4	GIS applications in management of soil and water in landscape. Projects: secondary landscape structure, soil map creation, soil erosion and runoff volume map. Spatial data input, creation and usage attribute database, integrated analyses of spatial and attribute dataset, export data and map composition.
541Z501	Grape and Wine Evaluation	WS	4	Content, nutritional substances in grapes, production and accumulation of content substances in the ripening process of grapes. The requirements for table grapes, uvological analysis, sensorial evaluation of table grapes. Assessment of grapevine, basic chemical analysis of must. Influence of fermentation, racking need, application of SO ₂ (sulphuring), clarification and stabilization of wine on its quality. Basic chemical analysis of wines, natural and extraneous components of wine. Standards related to the quality of grapes and wine. Sensorial evaluation of wine.
Z15-0012-I	Integrated River Basin Management	WS	4	Aims and possibilities of integrated management of soil and water in land: Regulation of surface runoff of precipitation water. Regulation of infiltration water. Regulation of evapotranspiration in concrete area. Safe diversion of surplus water from concrete area. Safe supply of short supply of water to concrete area. Assurance of optimal water and water-air regime for different requirements of human society (plants growing, redevelopment, nature protection ...) by organizational, biological and technical methods. Using of mathematical models for realization of objectives of integrated management

				of river basin.
622Z410	Integrated Systems of Fruit Production	WS	6	The subject advises students of integrated fruit production systems implementation into the orchards of Slovak republic. Includes the issues of optimal fruit tree growing by thrifty inlets on environment with the emphasis on integrated pest management against the most important pest and diseases with the use of automatic meteorological stations and software programmes.
Z15-0060-I	Irrigation System Design	SS	4	Source materials for irrigation projecting, hydrological, climatic, geological and hydro-geological. Preparation of irrigation constructions, standardization, construction documentation. Investment goal. Preparation documentation, projecting task. Documentation of real type of constructions. Projecting of soil unit. Proposal of irrigation detail, proposal of water distribution, its flow capacity and dimension of pipe network. Application of linear programming for optimization of pipe network. Reviewing of irrigation equipment characteristics from viewpoint of suitability for plants and soil. Drawing documentation of operational project, its realization.
Z15-0148-I	Landscape Design	WS	6	Definition and aim of landscape design. History development in landscape design. Landscape phenomena, tools and ways in landscape design. Landscape design as process of rationally land-use forms, landscape changes, its amelioration and revitalisation, nature and culture heritage preservation, and creation of landscape image. Aesthetics, composition and organisation of landscape spaces. Vegetation as dominant tool on landscape design. Principles and approaches in forest landscape design, agriculture and urban landscape one. Landscape-architectonical creation of road side vegetation, water basins and streams, agriculture farms, objects of agriculture management and technical works in the country.

Z15-0138-I	<u>Landscape Design Studio</u>	SS	5	Green design solutions in agricultural and forest land, with an emphasis on green areas. Processing analysis, evaluation and design of optimal functional organization of activities in the country, city and village. Solution proposals vegetation structures in land and country settlement. Creation of territorial systems of ecological stability. Designing recreation in the country. Designing Recovery rural seat in terms of vegetation. Proposal for a new solution and use the contact zone with the country office. Inclusion of residence in the country. Office as part of the landscape. Draft the landscape of the area. The project study is being processed at a scale of 1:10 000, 1:5 000, 1: 1000, 1:500. Stages of the landscape are maintained by entering seminar work.
Z15-0053-I	<u>Mathematical modelling of soil water regime</u>	SS	4	The objectives of the mathematical modelling, role of the mathematical models in simulation of biological and physical processes. Principles of mathematical model creation. Using of computers for building of the simulation models. Basics of MS Excel. Statistical methods - utilization for mathematical modelling. Main characteristics of the natural environment. Characterization of relationships in the system of the atmosphere - soil - plant. Principles of water flow into soil environment. Evapotranspiration. The balance of water into the soil profile. Input data into the model. Building of mathematical model of the water balance into the soil profile in irrigated crop production system. Case study with the mathematical model. Use of CropWat software for operation modelling of irrigation in crop production system.

Z15-0154-I	<u>Modelling, Visualization and Presentation in Landscape architecture</u>	WS	8	Subject follows the subject Creation of Public and Recreation space in urban areas. Modelling, Visualization and Presentation in Landscape Architecture "is applied discipline, a content of which is focused on the use of computer graphics in garden and landscape design. The course is based the application of bitmap and vector graphics editor (such as Adobe Photoshop / Illustrator, AutoCAD, EaglePoint, etc.). The learning process is divided into 3 phases. In the I-st phase the student learns how to work with 2-dimensional space and create a two-dimensional planning documentation (landscaping drawings) with using the efficient (automated) elements of design (product database, automated bill of quantities, etc.). The process of spatial modelling is includes the creation of visualization generated from 3d-object compositions. The techniques of visualization are applied on 3-D model to achieve adequate graphical output for the appropriate level detail. The last stage of the course is oriented into the presentational forms that are used in presenting a semester project.
Z15-0034-I	<u>Perennial and Bulb Nursering Techniques</u>	WS	4	Theoretical and practical cognition of technological processes of reproduction and cultivation perennials including ferns and grasses. The correct choice of multiplication assortment in flow to assess varietal selections of perennials. Technology generative reproduction of each species according to the so-called seeding groups. Vegetative propagation, origin of propagation material, right timing of propagation and subsequent processing potted plants. Harvested bulbous and tuberous plants, and their heat treatment. Recognition bulbs and tubers of species and technology of production annuals and biennials.
Z15-0042-I	<u>Portfolio design</u>	WS	4	In the first phase the students will learn the basics of graphic design, composition and aesthetics. In the second phase under supervision they will work on the strategy of their portfolio - for whom, content and how to seek attention.
Z15-0125-I	<u>Post-harvest technology of horticultural crops</u>	WS	4	Basic concepts, the quality of horticultural crops, effects on quality, quality requirements, management of quality, losses and reserves in production systems, post harvest operations and machine lines, types of stores, the process of storage, market adjustments.

Z15-0109-I	Pruning and Training of Fruit Trees	SS	4	Terminology related to the field of wood pruning and training. Classification of tree forms. Goals of fruit woods pruning. Basic principles regulating growth and yielding of fruit woods. Physiologically based pruning. Basic and miscellaneous pruning methods, classification of pruning according to tree age (forming, regulating and rejuvenation pruning), material and tools used for fruit woods pruning and training. Contribution of pruning and forming to fruit production intensity. Pruning and training of individual fruit species - apple tree, pear, quince, medlar, sweet and sour cherries, apricot, peach tree, plum tree, currants, gooseberry, raspberries, blackberries, miscellaneous and shell fruit species - typical tree (bush) forms and their characteristics, practical procedure of training of the selected tree (bush) forms and regulating pruning.
Z15-0170-I	Recreation Spaces Design	WS/SS	6	Content, historical and sociology aspect of recreation. Recreation potential and landscape values, the different approaches to classification. Regionalization of tourism at Slovakia territory, development and criteria for creation. Tourism, category, traditional and progressive forms. Forest as spatial component for recreation, category, composition, aesthetic and recreation - value criterion. Composition aesthetic marks and technical equipment of forest recreation. Recreation potential at the city territory, in transit zones and rural country. Territorial and equipment characteristics at recreational areas and spaces. Management of recreational spaces.
Z15-0062-I	River Modification and Restoration	WS	6	The objectives and principles of modification and rehabilitation of rivers. The purpose of river modification. Hydrological balance of the territory. River's discharge regime. Fluvial geomorphological processes. The principles of the natural geomorphological processes of stream's channel. Stream's plan view design, longitudinal profile and cross section design. Assessment of the riverbed stability. Channel armouring design. Riparian vegetation design. Flood control measures. Principles of river rehabilitation and restoration. The design of restoration objects.

Z15-0157-I	Rural Green Space Restoration and Design	WS	4	Structure of the rural settlement. The structure of the green in its functional areas. History, traditions, artistic representation of elements in rural settlements. Aesthetics, perception, incorporation of the seat into the country. Restoration of the countryside in terms of greenery within SAPARD, POD. Design solution of functional green zones in rural settlements. Design is processed at a scale of 1: 10,000, 1: 5000, 1: 1000, 1: 500, etc. Exercises are led by assigning a seminar paper. Designing a solution to a specific rural area.
Z15-0066-I	Rural Water Supply and Sewage Structures	WS	4	Engineer networks - classification and significance. The need of water for people, industry and agriculture. Surface and groundwater wells. Water treatment - chemical, biological and mechanical methods. Distribution of water - design principles, materials, sizing. Sewage - means sewage transfer. Waste-water types of pollution, the formation and properties. Sewage - mechanical, biological and chemical methods. Small wastewater treatment systems. Extensive methods of wastewater treatment.
Z15-0126-I	Seed production of vegetables and flowers	SS	3	The use of genetic resources in seed production, legislation, the quality and characteristics of the seeds, effects on seed quality, the general conditions of vegetables and flower seed production, post-harvest treatment of seeds, storage and treatment of seeds before sowing, production of vegetables seeds, production of flowers seeds.
Z15-0059-I	Small Waste Water Treatment Plant Design	SS	4	Sources of water pollution in rural areas and agricultural production. Technical and legal possibilities of wastewater from local sources of pollution. Clean-up methods - biological, mechanical. Differences with the city's cleaning methods - technical, technological. Bases for design of small sewage treatment plants. Ways of reducing N, P, heavy metals and other harmful substances. Proposal for cleaning. Septic, infiltration strips, filter fields, constructed wetlands, biological ponds, irrigation wastewater from agriculture. Comparison of solutions. Specific proposal for cleaning small farm and village.

Z15-0105-I	<u>Special Fruit Growing</u>	WS	6	Growing technology of selected fruit species - site selection, investments for various operations, soil preparation. Suitable rootstocks and cultivars for commercial orchards. Dates and planting techniques. Agricultural operations during vegetation. Training and pruning systems. Weed elimination. Fertilizing and irrigation. Pest and disease management. Fruit picking. Modern trends in biological material outplanting. Cluster 1: Extensive and intensive fruit plantings. Intensification of fruit production. Cluster 2: Particularity of growth, yielding and training and pruning of fruit trees. Cluster 3: The most important pests and diseases of fruit trees. Cluster 4: Intensive growing technology of pome fruits. Cluster 5: Intensive growing technology of stone fruits. Cluster 6: Intensive growing technology of berry and stone fruits.
Z15-0041-I	<u>Special greenery arrangements</u>	WS	5	Designing of specific styles for herbs plants and woody plants in landscape architecture. The choice of plants for the specific purpose of use: fast-growing trees and shrubs, cover soil herbs and shrubs, roof gardens, plants for public spaces (urban planter), vertical walls. Creating the technical conditions for the existence of the plants in anthropogenic and heavily loaded, in urban environment.
Z15-0065-I	<u>Water Works</u>	WS	6	Purpose and distribution of hydraulic engineering, hydraulic engineering importance for agriculture, population and national economy. Weirs fixed and mobile, design. Dams and reservoirs on agriculture and water tanks - their purpose and construction of dams. Design of low bulk dams. Use of hydropower situational solution hydropower. Water way - meaning, development, technical parameters. Small water reservoirs - importance of technical objects. Water balance of reservoir. Maintenance of water reservoirs. Technical solution of small water reservoir.