

Study Programme: Forestry and Natural Resources Management			
Name of the subject: APPLIED ECOCLIMATOLOGY IN SILVICULTURE			
Teacher and teaching assistant: Dr. Violeta P. Babić , associate professor; dr Vukan Lavadinović , assistant professor			
Status of the subject: Elective subject, electoral group VI			
Number of ECTS: 5			
Subject aim: Introducing students to the microclimatic characteristics of forest stands and mesoclimatic characteristics of forest areas, as well as to the methods for studying mesoclimatic characteristics of forest areas and forest stands for the purpose of silviculture.			
Subject outcomes: Training students for the application of basic methods for studying the microclimatic characteristics of forest stands in order to define factors important for the development of forest trees and the application of silvicultural measures.			
Content of the subject:			
<p><i>Active (theoretical) lectures:</i> Significance and application of ecoclimatology in silviculture, defining the most important climate elements important for the functioning of forest ecosystems. Climate and water resources. Calculation of the volume of the fallen water in the forest, runoff water volume, the influence of interception on the runoff water and coefficient of the runoff water, maximum amount of precipitation, rainy periods and periods without rain, precipitation probability, precipitation regime, amplitude of annual fluctuation of monthly rainfall, precipitation density. Calculation of the amount of active temperatures for the development of plants, for vegetation period, for the beginning and the end of the vegetation period. Determining the possibility of frost, date of the first and last frost, the possible duration of the frosty period. Determination of climatic characteristics of specified area, bioclimatic classifications. Light in the forest, changes in the intensity of illumination in the free space and in the vegetation, methods for measurement of the light regime in forest associations. Mesoclimatic and microclimate conditions of forest habitats. Changes in microclimate conditions in relation to the orographic factors and relation between forest belts with microclimate. Microclimate characteristics at the edge of the forest, at the upper border of the forest, wind border. Changes of microclimate due to certain tending treatments. The influence of forest and vegetation on the climate of the area. Forest as a filter system of the ground air layer.</p> <p><i>Practical lectures:</i> On concrete examples, students define the environmental conditions of forest area through the mentioned basic climate factors important for the functioning of forest ecosystems, define climate-geographical characteristics and use climate classifications, simulate specific methods for measurement of the light on examples.</p>			
<p>Lietarture: Babić V., Krstić M., Govedar Z., Todorić J., Vuković N., Milošević Z. (2015): Temperature and other microclimate conditions in the oak forests on Fruška Gora (Serbia), Thermal Science, Vinča Institute of Nuclear Sciences, Belgrade, Vol. 19, Suppl. 2; Babić V. (2010): Contribution to the study of light regime in sessile oak stands on Fruška Gora. Proceedings of the International Scientific Conference: Forest ecosystems and climate changes, Belgrade, Serbia; Jarčuška, B. (2008) Methodical overview to hemispherical photography, demonstrated on an example of the software GLA. <i>Folia Oecologica</i> 35; Babić V., Galić Z., Rakonjac L.J., Stajić S. (2011): Microclimate conditions in the stands of sessile oak on acid brown and lessive acid brown soils in Fruska Gora, International Scientific Conference: First Serbian Forestry Congress – Future with forest, Proceedings, University of Belgrade, Faculty of Forestry, November 11-13th, Belgrade, Serbia; Krstić, M., Kanjevac, B., Babić, V. (2018): Effects of extremely high temperatures on some growth parameters of sessile oak (<i>Quercus petraea</i>/Matt./Liebl.) seedlings in northeastern Serbia, Archives of Biological Sciences, Vol. 70, No. 3, pp. 521-529, Serbian Biological Society, Beograd; Milenković M., Babić V., Ducić V., Krstić M., Lazić B (2016): The water temperature trends of the Sava river in Serbia, XXIV International Conference “ Ecological Truth” EcoIst’16, University of Belgrade Technical faculty Bor, Proceedings, June 12-15th, Vrnjacka Banja, Serbia(792-798)</p>			
Number of classes :	Active (theoretical) lectures: 28 classes	Practical lectures: 32 classes	
60 classes (30+30)	30-2*1 class of the field lectures = 28	-Exercises=30 classes -Field lectures 1 day*2 = 2 classes	
Teaching methods: Active (theoretical) lectures in the classroom on PowerPoint presentations; Exercises - examples about simulation of concrete measurements on examples. Practical lectures - individual work of students by creating seminary papers - practical display of climate characteristics on concrete examples, creating elaborates of practical simulation of light measurement on examples; one-day field lessons on the experimental plots around Belgrade or in the educational bases of the Faculty of Forestry.			
Rating of knowledge (maximum score 100)			
Pre-exam obligations	points	Final exam	points
activity during the lectures	5	oral exam	65
practical lectures	10		
seminary paper (elaborate)	20		