

Study Programme: <i>Forestry and Natural Resources Management</i>			
Type and level of studies: <b>Master academic studies</b>			
Name of the subject: <b>SILVICULTURE</b>			
Teacher and teaching assistant: <a href="#">Dr. Branko Kanjevac</a> , assistant professor			
Status of the subject: Elective subject, electoral group IV			
Number of ECTS: 5			
<b>Subject aim:</b> Introducing students with the nature of the forest, influence of basic ecological factors (climate, edafic, orographic and biotic) on the forest, influence of forest on ecological factors, the importance of these factors to the silviculture and application of natural regeneration and forest tending; introducing students with the causes of forest degradation, criteria for defining the state and degree of degradation of forests and methods of conversion of degraded and devastated forests into forests of better quality.			
<b>Subject outcomes:</b> Training students for: knowledge of the nature of the forest, ecological importance of forest; for making ecological studies and the application of natural regeneration and forest tending methods; defining causes of forest degradation, criteria for defining the state and degree of degradation of forests and forest land based on the easily recognizable parameters; to conversion of degraded and devastated forests into forests of better quality; adjustment the silvicultural treatments to the actual state of the forest.			
<b>Content of the subject:</b> <i>Active (theoretical) lectures:</i> Natural regeneration of forest, conditions for successful regeneration of forest, basic methods of natural regeneration of forest (Clearcut system, Shelterwood system, Selection system), combined methods of natural regeneration, auxiliary treatments for natural regeneration of forest. Development phases of stand, basic methods of forest tending - aim of tending, classification of tending operations, forest thinning, classification of trees in stands in thinning, basic methods of thinning, rationalization of forest tending, pruning. Natural regeneration and tending of pure and mixed forests of our most important tree species - the basics of natural regeneration and forest tending, tree marking for cutting, making silvicultural plan. Degraded and devastated forests and deforested land. Causes of forest degradation. Conversion of degraded forests into higher quality forests, regenerative (vegetative) ability of forest trees; vegetation forms of degraded and devastated forests; criteria for defining the state and degree of degradation of forests - stand characteristics, state conditions. Methods of conversion of degraded and devastated forests into forests of better quality - melioration and reconstruction: indirect conversion of degraded forests into forests of better quality, direct conversion of degraded forests: restitution, substitution, combined method; artificial regeneration of forests; tending and maintenance of newly established forest plantations. Reclamation of forest land. <i>Practical lectures:</i> Defining environmental conditions (climate, orographic, edafic, characteristics of the locality, local heat potential); analysis and processing of ecological factors as decisive factors in order to select appropriate methods of natural regeneration and tending of certain types of forests. In concrete examples students simulate silvicultural treatments, make elaborates - silvicultural plans within a forest management plan; defining degree of degradation of forests and forest state; defining methods and silvicultural treatments based on the state of forest; cost calculation according to the existing norms.			
<b>Literature:</b> <b>Puettmann K., Coates D., Messier C. (2009)</b> A critique of Silviculture: Managing for Complexity. Island Press .Washington • Covelo • London. <b>Nicolescu V.N. et al. (2018)</b> Silvicultural guidelines for European Coppice forests. In eds: Coppice forests in Europae, Freiburg, Germany. <b>Matthews J. (1989):</b> Silvicultural systems, Clarendon press, Oxford; <b>Döbbeler H, Spellman H. (2002)</b> Methodological approach to simulate and evaluate silvicultural treatments under climate change. Forstwissenschaftliches Centralblatt 121:52-69. *** <b>(2003)</b> Silvicultural Systems Handbook for British Columbia. Ministry of Forests Forest Practices Branch. Victoria, British Columbia. For. Pract. Br., BC. Min. For., Victoria, BC. <a href="http://www.publications.gov.bc.ca">http://www.publications.gov.bc.ca</a> . <b>Krstić, M., Kanjevac, B. (2017):</b> Silviculture II - practicum. University of Belgrade Faculty of Forestry (examples on English language). <b>Krstic, M. (2008)</b> Effect of the local heat potential on the distribution of sessile oak forests. Biotechnology & Biotechnological Equipment, Volume 22, No 3, pp. 804-809. Publisher: Diagnosis Press, Sofia, Bulgaria. ISSN 1310-2818. <b>Krstić, M., Stojanović, Lj., Rakonjac, Lj. (2006)</b> Silviculture yesterday, today and tomorrow. International Scientific Conference: Sunstable use of Forest Ecosystems, the Challenge of the 21 <sup>st</sup> Century, 8-10 November, Donji Milanovac, Serbia. Proceedings, pg 161-171.			
Number of classes per week:	Lectures:	Exercises:	Other forms of teaching:
<b>Method of teaching:</b> Active (theoretical) lectures in the classroom; Exercises - examples about simulation of appropriate silvicultural works. Other forms of teaching: <u>colloquium</u> , individual seminar work of students by processing some specific topics; practical simulation of silvicultural works-creating elaborates and working in the computer laboratory of the Faculty of Forestry; making silvicultural plan; 4 days of one-day field lessons on the experimental plots around Belgrade.			
Rating of knowledge (maximum score 100)			
Pre-exam obligations	points	Final exam	points
activity during the lectures	5		
practical lectures	10	oral exam	65
elaborate	20		