Studying course: „Forestry and Natural Resources Management"

Subject: **"**Forest Machinery"

Professor/professors: **Dr Milorad Danilolvić**, full professor,

Status of the subject: electoral

ECTS number: 5

Condition: -

Goal of the subject:

The main aim of the course is to increase the necessary technical knowledge of forest machinery used in technology of forestry utilization process.

Result of the subject:

On completion of this course students will know basic principles of machine functioning, classification of forestry machines, their working capacities and the other specific technical characteristic which are necessary for decision making.

Content of the subject

Theoretical part:

Technical characteristics of: Modern internal combustion small petrol and diesel engines, Mechanical, hydrostatic and electric transmission, Ground based harvesting equipment: felling equipment (drive to tree and swing to tree machines; harvesters; harvester heads; cutting mechanism; boom cranes), extraction equipment (skidders and forwarders), processing equipment (de-limbers, de-barkers, chippers) and handling equipment (self-loaders, log-loaders), Cabell extraction systems (high-lead; sky line) and Site preparation equipment (mounders and disk trenchers).

Specifics of forestry base machines – carriers and tractors.

Practical part:

Examples of practical tasks and calculations of: force, moment of force, simple machines (lever, inclined plane and pulley), work and power, gear kinematics, centrifugal clutch, parameters of hydraulic system components, tractor performance, tractor and forest machines stability.

References:

1. Heisler, H.: Vehicle and engine technology, Elsevier Butterworth-Heinemann publications, Second edition, 2007.
2. MacDonald, A. J.**Harvesting systems and equipment in British Columbia**, FERIC handbook, ISSN 0701-8355
3. Shigley J. E, Uicker J. J, Theory of Machines and Mechanisms, International Student Edition, McGRAW-HILL International Book Company, 1980, ISBN 0-07-056884-7.
4. Ćuprić, N., Bajić, V.: **Cut-to-Length machines**, (key note paper) XIX International Conference on Material Handling, Constructions and Logistics, Faculty of Mechanical Engineering, University of Belgrade, 2009, pp. 109-118.
5. Mitrović, B., Ćuprić, N., Danilović, M.: **Skyline systems for wood extraction and possibility of application in forest utilization in Serbia,** XX International Conference on Material Handling, Constructions and Logistics, Faculty of Mechanical Engineering, University of Belgrade, 2012, pp. 185-190.
6. Dedić, A., Stanojević, M., Ćuprić, N.: **Selection of wood-chipper for logging residue woodchip production from wood waste after timber harvest,** XX International Conference on Material Handling, Constructions and Logistics, Faculty of Mechanical Engineering, University of Belgrade, 2012, pp. 191-194.
7. Ђупрић, Н.: Механизација у шумарству, практикум са изводима из теорије и решеним задацима, Универзитет у Београду, Шумарски факултет, 2014.

Number of active teaching lessons: 4	**Theoretical part of teaching: 2**	**Practical part of teaching: 2**

Methods of giving lectures:

Lectures, video presentations, video animations and examples for solving practical tasks.

Knowledge evaluation (max 100 points)

Before exam obligations:	points	**Final exam:**	points
activity during lectures	10	written exam	40
practical teaching	/	oral exam	/
colloquium(s)	20	.....	/
seminar(s)	30		/