

Study Programme: Precision agriculture			
Course Unit Title: Optimization of agricultural machinery workshops			
Course Unit Code: 19.PRP012			
Name of Lecturer(s): Milan D. Tomić			
Type and Level of Studies: Graduated-Master (2 semesters, 60 ECTS)			
Course Status (compulsory/elective): elective			
Semester (winter/summer): winter			
Language of instruction: Serbian			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 5			
Prerequisites: -			
Course Aims: Acquaintance with the parameters that affect the definition of the optimal technical maintenance system for the working correctness of machinery used in agriculture (definition of the optimal technological work process within workshops for agricultural machines, as well as equipment and personnel).			
Learning Outcomes: After completing the course, the student acquires knowledge and skills that enable him to: manage influential parameters important for defining optimal systems for maintaining the operational efficiency of mechanization in agriculture.			
Syllabus:			
<i>Theory</i> Lectures include: Defining the starting points of soil, climate, sowing structure and production technology; Determining the basic characteristics of the observed machinery park; Development of a mathematical model for the formation of a system for maintaining the operational correctness of machinery; Development of algorithms for the formation of optimal systems for maintenance of operational correctness; Production of technological maps; Selected methods of linear and non-linear programming. Multi-criteria programming. Stochastic optimization problems. Selection of optimal work technologies depending on the relevant parameters. Criteria for the selection of equipment. Determining the optimal number, type, size and layout of departments within the center. Application of simulation methods and mathematical models in design.			
<i>Practice</i> Calculation of the technical maintenance system for specific working conditions; components and basis for specific examples.			
Required Reading:			
1. Томић М., Фурман Т, Тот А. Ремонт и одржавање пољопривредне технике, Пољопривредни факултет Нови Сад, 2017.			
2. Томић М. Пројектовање ремонтних капацитета пољопривредне технике, ауторизовано предавање, Пољопривредни факултет Нови Сад, 2017.			
3. Васић Б., Јанковић Д., Цуровић Д. Технологија одржавања возила, Пројектовање и прорачун капацитета за одржавање, Машински факултет Београд, 2000.			
4. Јовановић Д.: Организација одржавања машина, Машински факултет универзитета у Београду, 1989.			
5. Бабусенко С. М.: Проектирование ремонтных предприятий, Колос, Москва, п 66-82, 1981.			
Weekly Contact Hours: 4	Lectures: 2		Practical work: 2
Teaching Methods: Lectures with the use of video presentations, creation of a workshop project for the maintenance of agricultural machinery. Consultations within lectures and exercises.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	
Practical work	20	oral exam	30
Preliminary exam(s)		
Seminar(s)	45		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			