Course Unit Descriptor

Study Programme: Agricultural engineering and information technologies			
Course Unit Title: Engines			
Course Unit Code: 19.PTI007			
Name of Lecturer(s): Mirko Simikić			
Type and Level of Studies: Undergraduate			
Course Status (compulsory/selective): compulsory			
Semester (winter/summer): summer			
Language of instruction: Serbian			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 5			
Prerequisites: None			
Course Aims: The aim of the course is to familiarize students with ICE engines that are installed on agricultural tractors, harvesters and other mobile and stationary systems. Also, students should familiarize with the tasks of individual systems with motors, constructions, functioning, basic adjustment, maintenance.			
Learning Outcomes: After passing the course, the student acquires knowledge and skills that enable him to: essential understanding of the technical basics of ICE motors, designing and testing IC engines, proper selection of IC engines according to purpose, system management and management conditions and ecological use of IC engines.			
Syllabus: *Theory* Power machines in agriculture, forestry and water management, importance, history, production, condition and needs. Classification, advantages and disadvantages of IC engines and other designs, basic terms and operation of diesel and auto engines. SUS engine structure, stationary and moving elements, distribution mechanism and engine balancing. Engine cooling and lubrication system, fuel and air supply to the engine and exhaust of burnt gases. Electrical devices and engine starting, measuring and control devices. Cycles and cycle indicators, indicator and effective parameters, mechanical losses, heat balance and cycle calculation. Engine characteristics, application, engine selection. Engine testing - standards, methods, equipment, measurement procedures, reporting. Trends in the development of IC engines and other engine designs. *Practice* Exercises, Other methods of teaching, Research work Familiarity students with engine constructions and the operation of SUS and other engines. System constructions, principles of operation, settings and basis of calculations. Calculation of cycles and indicators of engine operation. Engine testing - equipment, methods, standards and testing techniques and report formation. Application of engines on tractors, harvesters, motor vehicles and stationary plants.			
Required Reading: 1. Nikolić R, Savin L, Simikić M, Tomić M.: Power machines - IC engines, Edition: Technical sciences - textbooks, University of Novi Sad, Novi Sad, 2014. 2. Nikolić R, Savin L, Simikić M: Power machines - Constructions and working principles part II, Edition University textbook 184, University of Novi Sad, Novi Sad, 2008. 3. Nikolić R, Savin L, Simikić M: Power machines - tests, Edition University textbook 163, University of Novi Sad, Novi Sad, 2006. 4. Nikolić R: Power machines-constructions and working principles, Faculty of Agriculture, Novi Sad, 2004. 5. Nikolić R, Savin L.: Power machines - workbook, University Textbook Edition 122, 2000.			
Weekly Contact Hours: 6	Lectures: 3	Practical work: 3	
Teaching Methods: Method of oral presentation and conversation. Presentation methods, demonstrations, simulations, drawing and illustrating. Consultations and seminar papers. The method of practical work in laboratories and institutes.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points

Active class participation	5	written exam	20
Practical work	5	oral exam	45
Preliminary exam(s)	15	…….	
Seminar(s)	10		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			