

Course Unit Descriptor

Study Programme: AGRICULTURAL ENGINEERING AND INFORMATION TECHNOLOGIES			
Course Unit Title: <i>Electrical engineering and electrical machines</i>			
Course Unit Code: 19.PTIO03			
Name of Lecturer(s): Ass. Prof. Ondrej Ponjičan, PhD			
Type and Level of Studies: UNDERGRADUATE ACADEMIC STUDIES			
Course Status (compulsory/elective): compulsory			
Semester (winter/summer): winter			
Language of instruction: sebian			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 6			
Prerequisites: none			
Course Aims: Introducing students to the basic concepts of electrical engineering and the application of electrical and electronic devices, machines and systems in agriculture.			
Learning Outcomes: Students should understand the principles of operation and functioning of electrical devices and systems used in agricultural production and be able to perform basic measurements and selection of appropriate electrical equipment.			
Syllabus: <i>Theory:</i> Electrostatics. Time-constant electric currents. Magnetism. Time-varying electric and magnetic field. Time-varying electric currents. Electrical measurements. Fundamentals of electronics. Electrical measurements of non-electric quantities. Transformers. Types of rotary machines. Direct current machines. Asynchronous machines. Synchronous machines. Power electronics devices. Electric motor drives and electric traction in agriculture. Electrical installations, electric lighting and heating in agriculture. Alternative sources of electricity in agriculture. Electrical and electronic devices on agricultural machinery. <i>Practice:</i> Performing computational and laboratory exercises. Introduction to the practical implementation of the application of electrical engineering and electrical machines in agriculture.			
Required Reading:			
Weekly Contact Hours:	Lectures: 45	Practical work: 45	
Teaching Methods: <i>Theoretical teaching:</i> verbal-textual and demonstrative illustrative methods. <i>Practical classes:</i> managing students' independent work, demonstrative illustrative methods, demonstration of machines in operation, calculation methods.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation		written exam	
Practical work	10	oral exam	50

Preliminary exam(s)	40	
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			