

Title of the course: Electrotechnics	NEPTUN-code: RKXEL1EBNE	Weekly teaching hours: $l+cw+lb$ 2+1+0	Credit: 4 Exam type: tm
Course leader: Sándor Pekker, Dr.	Position: research professor	Required preliminary knowledge: There is no requirement	
Curriculum:			
Production and features single-phase alternating current. Peak and RMS value. The coil and the capacitor AC circuit. RLC circuits. AC power, power factor correction. Production of three-phase voltage. Three-phase networks. Star and delta. Transformers operating principle, equivalent circuit, operating conditions. The transformer structure. Special transformers. The basics of electronics. Semiconductor devices. The diode characteristics, application areas. Rectifier circuits. Special properties diodes. Power supplies. The thyristor, triac and diac structure, characteristic curves and application areas. Transistors construction, operation, characteristic curves. Amplifier basic circuits. The transistor switching operation. Amplifier circuit features. Operational Amplifiers construction, operation modes. Oscillators. Multi Plate. Operating principles, structure, replacing the coupling of the asynchronous machine. The single-phase asynchronous motor. Operating principle, starting torque and asynchronous machines. Principle of operation of DC machines, excitation solutions and operational features.			
Professional competencies:			
In possession of state-of-the-art IT skills, being able to use professional databases and certain design, modelling, and simulation software depending on their specialty. Efforts to improve knowledge by on-going self-education and continuously update their knowledge of the world. Responsible proclamation and representation of the value system of the engineering profession; openness to professionally well-founded critical remarks. Sharing experiences with colleagues, thus promoting their development.			
Literature:			
1. Valery Vodovozov: Introduction of to Electronic Engineering, 2010. http://bookboon.com ; ISBN: 978-87-7681-539-4			
2. Don Johnson: Fundamentals of Electrical Engineering I, Connexions , 2010; https://cnx.org/contents/d442r0wh@9.72:g9deOnx5@19/Themes ; 1999-2018, Rice University; ID: 778e36af-4c21-4ef7-9c02-dae860eb7d14@9.72			
3. John A. I. E. E. Henderson: ELECTROTECHNICS, WENTWORTH Press, 2016. aug. 25. - 188 pages, ISBN: 1362012750, 9781362012757			