

Level: bachelor				
Course title: Basic electronics				
Status: obligatory				
ECTS: 7				
Requirements: Electromagnetism				
Learning objectives Introduction to fundamentals of functioning of electronic elements and fundamental electronic circuits.				
Learning outcomes Following abilities developed: <ul style="list-style-type: none"> • General: reading professional literature; analysis of complex solutions and constructing the most appropriate solutions. • Specific: understanding the basic physical processes in semiconductors, functioning of basic electronic circuits. Application of the adopted knowledge in practice. 				
Syllabus <i>Theoretical instruction</i> Basic terms. Signals and signal transmission. Passive electronic components. Semiconductors, intrinsic and extrinsic. Pn junction and it's characteristics. Real semiconductor diodes and laser. BJT and FETs. Amplifiers. ICs. Operational amplifier with applications. BJT as switching device. Multivibrators. Logic gates. Flip-flops. Registers. Counters. Correspondence between analogue and digital signals. A/D and D/A conversion. <i>Practical instruction</i> Pn junction. Photodiode and LED. Hall effect. BJT characterises with common emitter. Characteristics of MOSFET. Amplitude and frequency characteristics of one stage amplifier. Operational amplifier. Logical gates. RS and D flip-flops.				
Weekly teaching load				Other:
Lectures: 3	Exercises: 3	Other forms of teaching: 2	Student research:	