

COURSE DESCRIPTION CARD

Faculty of Electrical Engineering										
Field of study	Electrical and Electronic Engineering							Degree level and programme type	bachelor's degree, full time programme	
Specialization/ diploma path								Study profile		
Course name	Modern Wireless Networks Technologies							Course code	IS-FEE-10010W	
								Course type	elective	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	winter	
	30							No. of ECTS credits	3	
Entry requirements										
Course objectives	Student is familiar with the main wireless network standards and distinguishing architectures.									
Course content	Classification of the wireless networks. Wireless Internet protocol. Physical layer. Radiowave propagation. Antennas for wireless networks. Multipath propagation and transmission channel model. Noise and pulse interferences, ISI, radio receiver structure, equalizers. RAKE receivers. Coding and modulation. Space-time Block and trellis coding. Architecture of the GSM, GPRS, EDGE and UMTS. The spread-spectrum technology. Main standards. The OFDM and MIMO Technologies. Hybrid wireless systems.									
Teaching methods	Lecture, presentation, discussion									
Assessment method	exam.									
Symbol of learning outcome	Learning outcomes								Reference to the learning outcomes for the field of study	
LO1	is familiar with the main wireless network standards;									
LO2	is familiar with distinguishing architectures and performance of wireless networks;									
LO3	is familiar with the basics of radiowave propagation and transmission channel issues;									
LO4	can asses implementation problems related to wireless networks.									
LO5										

LO6		
LO7		
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
LO1	exam;	
LO2	exam;	
LO3	exam;	
LO4	exam;	
LO5		
LO6		
LO7		
Student workload (in hours)		No. of hours
Calculation	lecture attendance	30
	homework	20
	participation in student-teacher sessions related to the class	5
	preparation for and participation in exam	25
	TOTAL:	80
Quantitative indicators		HOURS
		No. of ECTS credits
Student workload – activities that require direct teacher participation		38
Student workload – practical activities		20
Basic references	1. Harte L., Bowler D.: Introduction to mobile telephone systems. Althos Publishing, 2003. 2. Proakis J. G., Salehi M.: Communication systems engineering. Prentice-Hall, 2002. 3. Haykin S.: Communications systems. J. Wiley & Sons, 2000.	
Supplementary references	1. Bellamy J.: Digital telephony. J. Wiley & Sons, 1982.	
Organisational unit conducting the course	Department of Photonics, Electronics and Light Technique	Date of issuing the programme
Author of the programme	Adam Nikolajew, PhD.	08.02.2020

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,
S – seminar