

COURSE DESCRIPTION CARD

Faculty of Electrical Engineering									
Field of study	Electrical and Electronics Engineering							Degree level and programme type	bachelor's degree, full time programme
Specialization/ diploma path	-							Study profile	-
Course name	Telecommunication Devices							Course code	IS-FEE-10037S
								Course type	elective
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	summer
	30							No. of ECTS credits	3
Entry requirements	Radioelectronic Devices or relevant								
Course objectives	The principal objective of lectures is to cover the fundamentals digital television and radio systems and radio transmitter structures								
Course content	Structures and technical parameters of radiotransmitters and receivers. Automated gain control and automated frequency control. Frequency synthesizers. Microwave oscillators, microwave tubes, magnetrons and klystrons. Principles of digital communication systems. Channels multiplexing methods: FDMA, TDMA, CDMA.								
Teaching methods	lecture, presentation.								
Assessment method	oral exam, evaluation of student's reports								
Symbol of learning outcome	Learning outcomes Student who has completed the module:							Reference to the learning outcomes for the field of study	
LO1	has the knowledge about structures and parameters of transmitters and receivers;								
LO2	has the knowledge about principles microwave tubes and oscillators;								
LO3	has the knowledge about AFC and AGC systems principle of works;								
LO4	has the knowledge about principles of multiplexing communication channels.								
LO5									
Symbol of learning outcome	Methods of assessing the learning outcomes							Type of tuition during which the outcome is assessed	
LO1	evaluating the student's reports and tests on lecture content;							L	
LO2	evaluating the student's reports and tests on lecture content;							L	

L03	evaluating the student's reports and tests on lecture content;	L	
L04	evaluating the student's reports and tests on lecture content;	L	
Student workload (in hours)		No. of hours	
Calculation	Lecture attendance	30	
	preparation for and participation in exams/tests	30	
	preparation reports from homeworks	15	
		TOTAL:	75
Quantitative indicators		HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation		30	1
Student workload – practical activities		15	0,5
Basic references	1. Li Richard Chi-Hsi: RF circuit design. J. Wiley & Sons, 2008. 2. Grebennikov A.: RF and microwave power amplifier design. McGraw-Hill, 2005.		
Supplementary references	1. Sorentino R., Bianchi G.: Microwave and RF engineering. J. Wiley & Sons, 2010.		
Organisational unit conducting the course	Department of Photonics, Electronics and Lighting Technology	Date of issuing the programme	
Author of the programme	Maciej Sadowski	12.02.2020	

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

S – seminar