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	Electronics 2						Course code	IS-FEE-10030S	
							Course type	elective	
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	summer
	15	15	30					No. of ECTS credits	6
Entry requirements	Electronics 1								
Course objectives	The objective of this course is to provide students with deep understanding of advanced analogue circuits. The laboratory component of the course provides students with an opportunity to design, simulate and test various circuits discussed in class.								
Course content	Frequency response of single transistor amplifiers. Linear applications of operational amplifiers. Nonlinear applications of operational amplifiers. Voltage comparators. Current sources. Active filters. Output stages and power amplifiers. Voltage regulators. RC oscillators. Optoelectronic devices and circuits. Several lab and homework assignments in this class will require the use of PSpice software								
Teaching methods	lecture, class, laboratory class, computer simulations								
Assessment method	lecture: written exam; class: two tests; laboratory class: verification of preparation for classes, evaluation of reports								
Symbol of learning outcome	Learning outcomes								Reference to the learning outcomes for the field of study
LO1	describes the basic principles of operation of the electronic circuits;								
LO2	applies knowledge of mathematics and engineering to analysis and design of analog circuits;								
LO3	uses PSPICE to analysis and design of electronic circuits;								
LO4	can prepare and conduct experiments using datasheets and application notes;								
LO5	analyzes and interprets measurement data and prepares reports								
Symbol of learning outcome	Methods of assessing the learning outcomes								Type of tuition during which the outcome is assessed
LO1	written exam, tests								L, LC

LO2	written exam, tests	L, C, LC
LO3	verification of preparation for classes, evaluation of reports	LC
LO4	tests, evaluation of class work, evaluation of reports	LC
LO5	evaluation of reports	LC

Student workload (in hours)		**No. of hours**
Calculation	lecture attendance	15
	participation in classes	15
	preparation for classes	15
	participation in laboratory classes	30
	preparation for laboratory classes	20
	working on projects, reports	25
	participation in student-teacher sessions related to the classes/laboratory classes	5
	preparation for and participation in exams/tests	25
	TOTAL:	150

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	65	2,6
Student workload – practical activities	110	4,4

Basic references	1. Sedra A.S., Smith K. C.: Microelectronic Circuits. Oxford University Press, 2004. 2. Sinclair I., Dunton J.: Practical Electronics Handbook, Elsevier Science & Technology, 2006 (Available from: ProQuest Ebook Central)
Supplementary references	1. Boysen E., Kybett H.: Complete Electronics Self-Teaching Guide with Projects, John Wiley & Sons, Inc., 2012 (Available from: ProQuest Ebook Central) 2. Singh S.: Electronics Engineering, Alpha Science International, New Delhi, 2014 (Available from: ProQuest Ebook Central) 3. Westcott S., Westcott J.R.: Basic Electronics: Theory and Practice, Mercury Learning & Information, 2015 (Available from: ProQuest Ebook Central) 4. Saggio G.: Principless of analog electronic. CRC Press, 2014.

Organisational unit conducting the course	Department of Automatic Control and Robotics	**Date of issuing the programme**
Author of the programme	Andrzej Karpiuk, Ph.D.	24.02.2021

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

S – seminar