DESCRIPTION OF THE COURSE OF STUDY

Course code		0613-2INF-C16-PEE
Name of the course in	Polish	**Podstawy elektrotechniki i elektroniki**
	English	**Fundamentals of electrical engineering and electronics**

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	Computer Science
1.2. Mode of study	Full-time
1.3. Level of study	Undergraduate engineering study
1.4. Profile of study	General academic
1.5. Person/s preparing the course description	Dariusz Banaś
1.6. Contact	d.banas@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	English
2.2. Prerequisites	none

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes		Lectures, Laboratories
3.2. Place of classes		Courses in the UJK teaching rooms of the Faculty of Exact and Natural Science
3.3. Form of assessment		Exam; Credit with grade
3.4. Teaching methods		Lectures, Laboratories
3.5. Bibliography	**Required reading**	Darren Ashby, Electrical Engineering, Newnes Andy Cooper, Practical Electronics: A Complete Introduction, Teach Yourself
	Further reading	Basic Electricity: Complete Course, Volume 1-5, Prompt Publications

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1. Course objectives (including form of classes)

C1 - Acquainting with the laws governing the flow of direct and alternating current,
C2 - Acquainting with the physical fundamentals of the operation of semiconductor devices
C3 - Acquainting with the construction and principle of operation of basic systems and electrical devices and electronic
C4 - Acquiring the ability to recognize and analyze simple electrical circuits
C5 - Acquiring the ability to design and build simple electrical and electronic circuits

4.2. Detailed syllabus (including form of classes)

Laboratories:

Basics of electricity and magnetism (lecture / laboratory).
Direct and alternating current (lecture / laboratory).
Basic electrotechnical equipment (lecture / laboratory).
Basic laws of electrical circuits (lecture / laboratory).
Basic methods of electric circuit analysis (lecture / laboratory).
Analysis of circuit with RLC elements. Resonance in electrical circuits (lecture / laboratory).
Current in solids. Band model (lecture / laboratory).
Physical fundamentals of the operation of semiconductor devices, p–n junction (lecture / laboratory).
Basic semiconductor devices, models of semiconductor components (lecture / laboratory).
Integrated circuits (lecture).
Basic electronic circuits, amplifiers, generators (lecture / laboratory).
Basic digital circuits, flip-flops and counters, semiconductor memories, microprocessor systems (lecture).

4.3. Education outcomes in the discipline

Code	A student, who passed the course	Relation to learning outcomes
within the scope of **KNOWLEDGE:**		
W01	defines basic electrical quantities, gives basic laws governing the flow of direct and alternating current	ID1A_W03 ID1A_W04 ID1A_W05
W02	knows the basic active and passive elements of electrical systems, the principles of their operation in circuits of direct and alternating current, and basic methods of calculating circuits	ID1A_W03 ID1A_W04 ID1A_W05
W03	describes the principles of operation of basic electrotechnical equipment	ID1A_W03 ID1A_W04 ID1A_W05
W04	describes the physical principles of the operation of semiconductor devices and their tasks in electronic circuits	ID1A_W03 ID1A_W04 ID1A_W05
W05	explains the construction, operation and application of basic electronic circuits	ID1A_W03 ID1A_W04 ID1A_W05
within the scope of **ABILITIES:**		
U01	can recognize and analyse simple electrical circuits	ID1A_U03 ID1A_U04
U02	can design and build simple electrical and electronic circuits	ID1A_U03 ID1A_U04
U03	can build a measuring system based on the presented diagram and make measurements	ID1A_U03 ID1A_U04
within the scope of **SOCIAL COMPETENCE:**		
K01	is aware of the need to cooperate in order to effectively carry out the task entrusted	ID1A_K01

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes *(code)*	Method of assessment (+/-)																				
	Oral answer			Project			Self-study			Group work			Exam								
	Form of classes			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*		
	L	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*	*L*	*C*	*P*
W01													+								
W02													+								
W03													+								
W04													+								
W05													+								
U01					+																
U02					+																
U03					+																

K01										+										

4.5. Criteria of assessment of the intended learning outcomes		
Form of classes	**Grade**	**Criterion of assessment**
lecture (L)	**3**	at least 50% and not more than 60% of the total number of available points
	3,5	more than 60% and not more than 70% of the total number of available points
	4	more than 70% and not more than 80% of the total number of available points
	4,5	more than 80% and not more than 90% of the total number of available points
	5	more than 90% of the total number of available points
classes (C)	**3**	at least 50% and not more than 60% of the total number of available points
	3,5	more than 60% and not more than 70% of the total number of available points
	4	more than 70% and not more than 80% of the total number of available points
	4,5	more than 80% and not more than 90% of the total number of available points
	5	more than 90% of the total number of available points
project (P)	**3**	at least 50% and not more than 60% of the total number of available points
	3,5	more than 60% and not more than 70% of the total number of available points
	4	more than 70% and not more than 80% of the total number of available points
	4,5	more than 80% and not more than 90% of the total number of available points
	5	more than 90% of the total number of available points

5. BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT

Category	**Student's workload**	
	Full-time studies	**Extramural studies**
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/		
Participation in lectures		
Participation in laboratories/project	45	
Preparation for the exam		
Others		
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/		
Preparation for the lecture		
Preparation for the laboratories	25	
Preparation for the exam		
Gathering materials for the project	10	
Preparation of multimedia presentation		
*Others**		
TOTAL NUMBER OF HOURS	***80***	
ECTS credits for the course of study	**4**	

Accepted for execution *(date and signatures of the teachers running the course in the given academic year)*

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