



MODULE SPECIFICATION

Module code	
Module title in Polish	Inżynieria elektryczna
Module title in English	Electrical Engineering
Module running from the academic year	2016/2017

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	Environmental Engineering
Level of qualification	first cycle (first cycle, second cycle)
Programme type	academic (academic/practical)
Mode of study	full-time (full-time/part-time)
Specialism	All
Organisational unit responsible for module delivery	The Department of Electrical Machines and Mechatronic Systems
Module co-ordinator	
Approved by:	Prof. Roman Nadolski, PhD hab., Eng

B. MODULE OVERVIEW

Module type	core module (core/programme-specific/elective HES*)
Module status	compulsory module (compulsory/optional)
Language of module delivery	Polish/English
Semester in the programme of study in which the module is taught	semester 2
Semester in the academic year in which the module is taught	summer semester (winter semester/summer semester)
Pre-requisites	None (module code/module title, where appropriate)
Examination required	No (Yes/No)
ECTS credits	

* elective HES – elective modules in the Humanities and Economic and Social Sciences



Politechnika Świętokrzyska

WYDZIAŁ INŻYNIERII ŚRODOWISKA, GEOMATYKI I ENERGETYKI

Mode of instruction	lectures	classes	laboratories	project	others
Total hours per semester			15		



C. LEARNING OUTCOMES AND ASSESSMENT METHODS

Module aims	The aim of the module is to familiarise students with basic concepts of electrical engineering, electronics and electrical installations; another aim is learning how to connect electric circuits, reading measuring instruments and analysing measurement results.
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Module outcome code	Module learning outcomes	Mode of instruction (l/c/lab/p/others)	Corresponding programme outcome code	Corresponding discipline-specific outcome
W_01	A student has knowledge as regards mathematics, physics, and other fields of science which is useful to formulate and solve simple tasks connected with electrical engineering.	Lab.	IŚ_W01	T1A_W01 T1A_W02
W_02	A student knows the selected computer programs which support calculating and designing the objects of electrical engineering.	Lab.	IŚ_W05	T1A_W07 T1A_W05
W_03	A student has knowledge on the function of information, selecting information sources as well as the elements of multimedia technology.	Lab.	IŚ_W017	T1A_W02
U_01	A student can apply mathematical methods and utilise physical process to solve problems occurring in electrical engineering.	Lab.	IŚ_U01	T1A_U08 T1A_U09
U_02	A student can obtain information from databases, the literature on the subject and other sources; a student can integrate the obtained information, interpret it, draw conclusions, and justify his/her opinions.	Lab.	IŚ_U02	T1A_U01 T1A_U05 T1A_U07
U_03	A student can work individually and in a team; a student can also prepare and realise the schedule of work as regards the realised task.	Lab.	IŚ_U03	T1A_U02 T1A_U08
U_04	A student can prepare technical documentation which concerns the realisation of an engineering task.	Lab.	IŚ_U05	T1A_U03 T1A_U04
K_01	A student is capable of working individually; in addition, a student can work in a team on the assigned task.	Lab.	IŚ_K01	T1A_K03
K_02	A student is responsible for the reliability of the obtained results of his/her work and its interpretation.	Lab.	IŚ_K02	T1A_K02 T1A_K05
K_03	A student acts according to the principles of professional ethics.	Lab.	IŚ_K08	T1A_K03 T1A_K07

Module content:

1. Topics to be covered in the lectures
2. Topics to be covered in the classes

No.	Topic	Module outcome code
1.	Discussing the syllabus of laboratory classes, OHS principles, the regulations binding in the laboratory, and the conditions of obtaining a credit.	W_01 U_01



2.	Measuring resistance with an ohmmeter, the Wheatstone and Thomson bridge, as well as with the technical method.	W_01 U_02, U_03, U_04 K_01, K_02, K_03
3.	Measuring power in three-phase symmetric and asymmetric systems, with the neutral wire and without the neutral wire.	W_01, W_02 U_02, U_03, U_04 K_01, K_02, K_03
4.	Fire protection: measuring the impedance of the short-circuit loop; examining RDs.	W_01 U_02, U_03, U_04 K_01, K_02, K_03
5.	Examining RLC systems: series and parallel connection.	W_01 U_03, U_04 K_01, K_02, K_03
6.	The work of a squirrel-cage induction motor: idle state, fault state, and a load state.	W_01 U_03, U_04 K_01, K_02, K_03
7.	Examining single-phase uncontrolled rectifiers (single-half and two-half rectifiers).	W_01, W_02 U_02, U_03, U_04 K_01, K_02, K_03
8.	Obtaining a credit for reports and laboratory classes (an oral and written form).	W_01 W_03 U_01

3. Topics to be covered in the laboratories

Assessment methods

Module outcome code	Assessment methods <i>(Method of assessment; for module skills – reference to specific project, laboratory and similar tasks)</i>
W_01 W_02 W_03	Checking knowledge during the completion of laboratory class assignments. A test.
U_01 U_02 U_03	A report.
K_01 K_02 K_03	Correct completion of laboratory class assignments



D. STUDENT LEARNING ACTIVITIES

ECTS summary		
	Type of learning activity	Study time/ credits
1	Contact hours: participation in lectures	
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	15
4	Contact hours: attendance at office hours (2-3 appointments per semester)	3
5	Contact hours: participation in project-based classes	
6	Contact hours: meetings with a project module leader	
7	Contact hours: attendance at an examination	
8		
9	Number of contact hours	18 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	0,72
11	Private study hours: background reading for lectures	
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	
14	Private study hours: preparation for laboratories	2
15	Private study hours: writing reports	3
16	Private study hours: preparation for a final test in laboratories	2
17	Private study hours: preparation of a project/a design specification	
18	Private study hours: preparation for an examination	
19		
20	Number of private study hours	7 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	0,28
22	Total study time	25
23	Total ECTS credits for the module <i>(1 ECTS credit = 25-30 hours of study time)</i>	1
24	Number of practice-based hours <i>Total practice-based hours</i>	25
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	1

E. READING LIST

References	
Module website	