STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Computer methods in control systems	**1010311261010322647**

Field of study	Profile of study (general academic, practical)	Year /Semester
Electrical engineering	**(brak)**	**3 / 6**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**full-time**

No. of hours	No. of credits
Lecture: **1** Classes: **-** Laboratory: **1** Project/seminars: **-**	**2**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
(brak)	**(brak)**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**2 100%**
Technical sciences	**2 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knows selected simulation tools to support analog-digital design of electronic circuits and power converters. He knows the rules and declare modeling parameters and the types of simulation analysis.
2	**Skills**	He can apply his knowledge in the field of electronics and power systems for the analysis of the primary. He can execute a simulation model to declare some types of analysis parameters. It can carry out the simulation studies
3	**Social competencies**	He can think and act in an entrepreneurial manner in the use of simulation tools for design of electronic circuits and electronics.

Assumptions and objectives of the course:

Acquisition of the ability to use simulation tools selected electronics and power electronics. Introduction to the principles of the declaration of types and parameters selected analyzes. Acquisition systems modeling and analog-to-digital power converters.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Should be able to: offer choice of simulation tools for the implementation of the specific model, characterize the basic types of simulation analysis - [K_W02 ++, K_W011+++]

2. Should be able to: identify the criteria necessary for the proper modeling of electronic control systems and power electronic systems - [K_W02+++, K_W14++]

Skills:

1. Will be able to: apply knowledge of electronics and power to implement a simulation model of a system - [K_U03 ++, K_U10 +++]

2. Will be able to: identify the criteria necessary for the proper modeling of electronic systems and power electronics, used selected simulation tools to support and declare the parameters and types of simulation analysis, simulation studies carried out - [K_U03 ++, K_U10 ++, K_U13+++]

Social competencies:

1. He can think and act in an entrepreneurial manner in the design and modeling of electronic systems and power electronics - [K_K02 ++]

Assessment methods of study outcomes

Lecture:

? continuous evaluation for each course (rewarding activity and quality perception)

Laboratory:

? rewarding the knowledge necessary for the accomplishment of problems in the area of tasks in the laboratory,

? continuous evaluation, rewarding gain skills they met the principles and methods

? assess the knowledge and skills related to the implementation of laboratory exercises, the evaluation report made ??exercise.

Get extra points for the activity in the classroom, and in particular for:

? propose to discuss further aspects of the subject,

? the effectiveness of the application of the knowledge gained during solving the given problem,

? ability to work within a team performing a task specific practice in the laboratory.

Course description

Discussion of simulation tools (capabilities and applications). Principles of modeling of electronic systems and power electronics using selected tools. Declaring parameters and the types of simulation analysis. Carry out detailed research and analysis completed simulation models. Verification of the accuracy of the results of simulations.

Basic bibliography:

1. A. Król Moczko, J. Moczko ? PSpice Symulacja i optymalizacja układów elektronicznych, Poznań, Nakom, 1999.
2. B.Mrozek, Zb.Mrozek - MATLAB i Simulink, Poradnik użytkownika, HELION, 2004.
3. A.Kamińska, B.Pańczyk - Matlab - przykłady i zadania, Mikom, 2002.
4. W. Tłaczała ? Środowisko LabVIEW w eksperymencie wspomaganym komputerowo, WNT.

Additional bibliography:

1. Mohan N., Undenland T.M., Power Electronics, Converters, Applications and Design, New York, Willey 1989.
2. P. Horwitz, W. Hill ? Sztuka elektroniki, Warszawa, WKŁ 1997.
3. U. Tietze, Ch. Schenk ? Układy półprzewodnikowe, WNT, W-wa 1996.

Result of average student's workload

Activity	Time (working hours)
1. Lectures, laboratories, consulting	45
2. Laboratory classes, preparation for classes, reports	35

Student's workload

Source of workload	hours	ECTS
Total workload	45	2
Contact hours	35	1
Practical activities	15	1