

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Microcomputers in high voltage engineering		Code 1010311271010312762
Field of study Electrical Engineering	Profile of study (general academic, practical) general academic	Year /Semester 4 / 7
Elective path/specialty High Voltage Engineering	Subject offered in: polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: - Classes: - Laboratory: 2 Project/seminars: -		No. of credits 3
Status of the course in the study program (Basic, major, other) major		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 3 100%
Responsible for subject / lecturer: Andrzej Graczkowski email: andrzej.graczkowski@put.poznan.pl tel. 61 665 2018 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has knowledge about the basics of electrical engineering and power engineering
2	Skills	Student can independently solve simple tasks in the field of electrical engineering, power engineering and can to use computer programs
3	Social competencies	Student is aware of the work in the group
Assumptions and objectives of the course: Getting to knowledge about software that allows the numerical computation, symbolic simulation of circuits and data analysis		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student has knowledge about designs, constructions and operation of electrical equipment - [K_W08++]		
Skills:		
1. Student can formulate an algorithm uses a programming language and related software tools used in electrical engineering - [K_U04++]		
2. Student can use the known methods and mathematical models and computer simulations to analyze and evaluate the electrical components and systems - [K_U10++]		
Social competencies:		
1. Student is aware of the importance and understand the various aspects and effects of electrical engineering activities, including the impact on the environment and the associated accountability for the decisions - [K_K02++]		
Assessment methods of study outcomes		
Laboratory assessment		
Course description		

<ol style="list-style-type: none"> 1. Introduction to PSpice 2. Impedance divider $R1 R2 ? C1 C2$ in the frequency domain - circuit simulation in Pspice 3. Voltage impulse generator - circuit simulation in Pspice 4. Introduction to Mathcad 5. MathCad Impedance divider $R1 R2 ? C1 C2$ in the frequency domain - analytical calculations and graphs in MathCad 6. Voltage impulse generator - analytical calculations and graphs in MathCad 7. Electric field distribution in a coaxial cable - analytical calculations and graphs in MathCad, in this example: solving equations, determination of minimum of the function 8. Three-dimensional graph of the equation $z(x, y)$ given parametrically in MathCad 9. Three-dimensional presentation of measured data in MathCad - in this example: matrix operations, create of own program 10. Determination of space charge distribution in the method of electrically simulated acoustic wave - in this example: the presentation of numerical integration and differentiation in the Origin 		
Basic bibliography: <ol style="list-style-type: none"> 1. Flisowski Z., Technika wysokich napięć, WNT, Warszawa, 2005 2. Regel W., Mathcad: przykłady zastosowań, MIKOM, 2004 3. Wojtuszkiewicz K., Zachara Z., PSpice: przykłady praktyczne, Mikom, 2000 		
Additional bibliography:		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparing for lessons	30	
2. Participation in laboratory activities	30	
3. Development of the projects at home	12	
4. Consultation	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	74	3
Contact hours	32	2
Practical activities	42	2