

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Computerization of the designing in the electronics		Code 1010324371010324792
Field of study Electrical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 4 / 7
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: - Classes: - Laboratory: 8 Project/seminars: -		No. of credits 1
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 1 100% 1 100%
Responsible for subject / lecturer: prof. dr hab. inż. Ryszard Nawrowski email: Ryszard.Nawrowski@put.poznan.pl tel. 616652659 Elektryczny ul. Piotrowo 3A, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Information in field of Mathematics, Numerical Analysis, Informatics, Theory of circuits, Electrical engineering, Electrical Power Engineering.
2	Skills	Skills in understanding and interpretation of information and effective self-education in field of science related with chosen academic discipline.
3	Social competencies	Student should have consciousness of necessity of improving his competences, readiness to work individual and cooperate within groups.
Assumptions and objectives of the course: Presentation of: basics of design, selected numerical analysis methods used to solve issues in field of theory of circuits and electrical power engineering, algorithmic way of thinking and creation of special software.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. use and implement numerical analysis methods, such as: numerical integration, solving equations and systems of linear, nonlinear and differential equations, interpolation and approximation - [K_W10+, K_W11++] 2. recognize and select proper tools for information technology implementation - [K_W10+, K_W11++]		
Skills: 1. use knowledge of the Numeric analysis for selected issues in field of theory of circuits, electrical power engineering, necessary to implement design tasks - [K_U04+++, K_U10++, K_U13++] 2. get information from literature and web, work individual, solve exercises in the field of the computerization of designing - [K_U04+++, K_U10++]		
Social competencies: 1. think and operate in enterprising way in the field of software creation for designing in electrical engineering - [K_K02++, K_K03++]		
Assessment methods of study outcomes		

<p>Lab classes: ? assessment of knowledge and skills on the basis of test consisting on solving of numerical and informatics issues in field of electrical engineering, ? verification and rewarding knowledge and skills for carrying problematic issues (homeworks).</p> <p>Obtaining additional points for activity during exercises, in particular way for: ? activiti on classes in any attempt to solving of the problem to solve, ? skill of co-operation in workgroups.</p>		
Course description		
<p>Presentation of: convergence and stability of numerical solutions, issues of numerical integration of electrical quantities, numerical solutions of equations and systems of equations: linear, nonlinear, differential and partial differential used for electrical engineering issues of interpolation and approximation.</p>		
Basic bibliography:		
<p>1. Kaćki E.: Metody numeryczne dla inżynierów, WPL, Łódź 2003. 2. Bolkowski S.:Teoria obwodów elektrycznych, WNT, Warszawa 1998. 3. Fortuna Z. Metody numeryczne, WNT, Warszawa 1998.</p>		
Additional bibliography:		
<p>1. Baron B.: Metody numeryczne w Turbo Pascalu, Helion, Gliwice 1996. 2. Normy i katalogi do danego projektu.</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. participation in lab exercises	8	
2. participation in consultations on the lab classes	6	
3. preparation for the lab classes	6	
4. homeworks	8	
5. preparation for the pass	6	
Student's workload		
Source of workload	hours	ECTS
Total workload	34	1
Contact hours	14	1
Practical activities	28	1