

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Computerization of the designing in the electronics</b>		Code <b>1010321351010324792</b>
Field of study <b>Electrical Engineering</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>3 / 5</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: - Classes: - Laboratory: <b>15</b> Project/seminars: -		No. of credits <b>1</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>1 100%</b> <b>1 100%</b>
<b>Responsible for subject / lecturer:</b>  prof. dr hab. inż. Ryszard Nawrowski email: Ryszard.Nawrowski@put.poznan.pl tel. 616652388 Elektryczny ul. Piotrowo 3A, 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Information in field of Mathematics, Numerical Analysis, Informatics, Theory of circuits, Electrical engineering, Electrical Power Engineering.
2	<b>Skills</b>	Skills in understanding and interpretation of information and effective self-education in field of science related with chosen academic discipline.
3	<b>Social competencies</b>	Student should have consciousness of necessity of improving his competences, readiness to work individual and cooperate within groups.
<b>Assumptions and objectives of the course:</b> 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.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. describe and implement numerical analysis methods, such as: numerical integration, solving equations and systems of linear, nonlinear and differential equations, interpolation, approximation - [K_W10+, K_W11++]		
2. recognize and select proper tools for information technology implementation - [K_W10+, K_W11++]		
<b>Skills:</b>		
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 design - [K_U04+++, K_U10++]		
<b>Social competencies:</b>		
1. think and operate in enterprising way in the field of software creation for designing in field of electrical engineering - [K_K02++, K_K03++]		
<b>Assessment methods of study outcomes</b>		

<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 (home works).</p> <p>Obtaining additional points activity during exercises, in particular way for:          ? activity on classes in any attempt to solving of the problem to solve,          ? skill of co-operation in workgroups.</p>		
<b>Course description</b>		
<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>		
<b>Basic bibliography:</b>		
<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>		
<b>Additional bibliography:</b>		
<p>1. Baron B.: &amp;#34;Metody numeryczne w Turbo Pascalu&amp;#34;;, Wydawnictwo Helion, Gliwice 1996.          2. Normy i katalogi do danego projektu.</p>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. participation in lab exercises	15	
2. participation in consultations on the lab classes	6	
3. preparation for the lab classes	6	
4. homeworks	6	
5. preparation for the pass	6	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	39	1
Contact hours	21	1
Practical activities	33	1