STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Computerization of the designing in the electronics**	Code **1010321341010324792**

Field of study **Electrical Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **2 / 4**

Elective path/specialty **-**	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: **30** Classes: **-** Laboratory: **-** Project/seminars: **-**	No. of credits **2**

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 %**)** **2 100%** **2 100%**

Responsible for subject / lecturer:

dr inż. Leszek Kasprzyk
email: Leszek.Kasprzyk@put.poznan.pl
tel. 616652659
Faculty of Electrical Engineering
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, rules for creating project documentation, selected numerical analysis methods used to solve issues in field of theory of circuits and electrical power engineering, parts of codes in C#.

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

Knowledge:

1. describe: range of project, designed object, implemented numerical analysis methods, such as: numerical integration, solving equations and systems of linear, nonlinear and differential equations, basic methods of optimization - [K_W02+++, K_W04+++, K_W11++]

2. recognize and select tools for information technology implementation - [K_W02+++, K_W04+++, K_W11++]

Skills:

1. use knowledge of the Numeric analysis for selected issues in field of theory of circuits and 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_K01++, K_K02++, K_K03++]

Assessment methods of study outcomes

Lecture:

- assess the knowledge and skills listed on the written exam of the computerization of designing in electrical engineering.

Obtaining additional points for activity during exercises, in particular way for:

- proposing to discuss additional aspects of the subject,

- effective use of knowledge obtained during solving of given problem,

- comments related to improve teaching material.

Course description

Presentation of: rules of designing and creating projects documentation, convergence and stability of numerical solutions, calculations errors, issues of numerical integration of electrical quantities, numerical solutions of equations and systems of equations: linear, nonlinear, differential and partial differential used in electrical engineering and methods of determined and not determined optimization.

Basic bibliography:

1. Kącki E.: Metody numeryczne dla inżynierów, WPŁ, Łódź 2003.

2. Bolkowski S.: Teoria obwodów elektrycznych, WNT, Warszawa 1998.

3. Fortuna Z.: Metody numeryczne, WNT, Warszawa 1998.

Additional bibliography:

1. Baron B.: "Metody numeryczne w Turbo Pascalu", Wydawnictwo Helion, Gliwice 1996.

2. Normy i katalogi do danego projektu.

Result of average student's workload

Activity	Time (working hours)
1. participation in the lectures	30
2. participate in the consultations on of the lecture	4
3. preparation for the exam	20
4. participation in the exam	5

Student's workload

Source of workload	hours	ECTS
Total workload	59	2
Contact hours	39	1
Practical activities	0	0