STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Computerization of the designing in the electronics	**1010324361010324792**

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	**part-time**

No. of hours	No. of credits
Lecture: **12** Classes: **-** Laboratory: **-** 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:

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

Discussion of convergence and stability issues of numerical solutions, problems of numerical integration of electrical quantities, approximation in technique, iterative solving of equations and systems of linear, nonlinear, ordinary and partial differential equations used in electrical engineering and application to electrotechnical methods of determined and stochastic optimization methods.

Update 2017: Overview of selected engineering applications for design (eg AutoCAD, Eagle, Matlab Simulink)

Lectures - multimedia presentations (including drawings, photographs, animations) supplemented by examples given on the whiteboard, taking into account various aspects of the presented issues, including: economic, ecological, legal and social; presentation of a new topic preceded by reminder of related content known to students from other items.

Basic bibliography:

1. Kącki E.: Metody numeryczne dla inżynierów, WPŁ, Łódź 2003
2. Bolkowski S.: Teoria obwodów elektrycznych, WNT, Warszawa 1998
3. Guziak T: Metody numeryczne w elektrotechnice, PL, Lublin 2002
4. Fortuna Z.: Metody numeryczne, WNT, Warszawa 1998

Additional bibliography:

1. Baron B.: Metody numeryczne w Turbo Pascalu, Wydawnictwo Helion, Gliwice 1996.
2. John Sharp: Microsoft Visual C# 2008 krok po kroku, Wydawnictwo RM, Warszawa 2009.

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