STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Computer - aided design of technical systems**		Code **1010342631010327413**
Field of study **Mathematics**	Profile of study (general academic, practical) **(brak)**	Year /Semester **2 / 3**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **Second-cycle studies**	Form of study (full-time,part-time) **full-time**	

No. of hours				No. of credits **4**
Lecture: **30**	Classes: **-**	Laboratory: **-**	Project/seminars: **15**	

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	ECTS distribution (number and %**)**
technical sciences	**4 100%**
Technical sciences	**4 100%**

Responsible for subject / lecturer:

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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 computer aided design,

- principles of design documentation,

- selected methods of prototyping a technical object,

- modeling of two and three-dimensional objects in environment of Autodesk.

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

Knowledge:

1. student knows advanced computational techniques, supporting the work of mathematics and understand their limitations - [K_W08+++]

2. student knows approximate numerical methods for solving mathematical problems (eg, differential equations) made ??in other fields of science (eg, electrical engineering, industrial technology, management, etc.) - [K_W10++]

3. student knows well, at least one software package used for symbolic computation, and one package for statistical data processing - [K_W12++]

Skills:

1. student recognizes mathematical structures (such as algebra, geometry) in physical theories - [K_U17+++]

2. student understands the mathematical basis of the analysis of algorithms and computational processes - [K_U19++]

3. student is able to construct a correct numerical algorithms, taking into account the complexity of computing, designed to solve common and unusual mathematical problems - [K_U20++]

Social competencies:

1. student knows his own limitations of knowledge and understands the need for further education - [K_K01+++]

2. student is able to work as a team, understands the need for regular work on any projects that are long term in nature - [K_K03++]

3. student can independently search the literature, even in foreign languages - [K_K06++]

Assessment methods of study outcomes

Lecture:

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

Class project:

- Assessment of knowledge and skills on the basis of assessment involving the numerical solution of the problem-information in the field of technical sciences (eg, electrical engineering),

- Checking and favoring knowledge and skills for the implementation issues of problem (homework).

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,

- aesthetics of solved problems ? within self-education.

Course description

Principles of design and creation of project documentation for technical objects.

Implementation of the project tasks using AutoCAD system. Application of computer systems to support design elements of technical objects. Issues two-dimensional and three-dimensional structures in computer notation, parametric model.

Basic bibliography:

1. Dąbrowski M. Projektowanie maszyn elektrycznych prądu przemiennego, WNT, Warszawa 1994.

2. Chlebus E. ? Techniki komputerowe CAx w inżynierii produkcji, WNT, Warszawa 2000.

3. AUTOCAD technical documentation

Additional bibliography:

1. Autodesk programs - documentation

2. Documentation CAD programs available on the web pages.

Result of average student's workload

Activity	Time (working hours)
1. Participation in the lectures	30
2. Participation in the project class.	15
3. Participation in the consultations on of the lecture	10
4. preparation for the exam	20
5. Participation in the exam	5
6. Participation in the consultations	5

Student's workload

Source of workload	hours	ECTS
Total workload	117	4
Contact hours	62	2
Practical activities	62	2