

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Basics of digital prototyping technical objects		Code 1010341731010329411
Field of study Mathematics in technology	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: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: - Laboratory: 30 Project/seminars: -		No. of credits 4
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 %) 4 100% 4 100%
Responsible for subject / lecturer: dr inż. Krzysztof Kowalski email: Krzysztof.Kowalski@put.poznan.pl tel. +486652595 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of electrical engineering, electrical machines, and WINDOWS operating system.
2	Skills	Principles of engineering structures on a general level. Skill of effective self-education in a field related to the chosen field of study.
3	Social competencies	Is aware of the the need to broaden their competence, willingness to cooperate within the team
Assumptions and objectives of the course: Acquisition of the ability to use software supporting the process of designing technical objects and graphic documentation of machine parts. The acquisition of computer skills mapping of simple structural elements of technical systems of two-dimensional and three-dimensional.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. It has an elementary knowledge of information technology, used in electrical engineering, in architecture and software computer systems, the use of basic tools, as well as knowledge of relational databases, applications engineering; He has ordered knowledge of selected algorithms and methodology and programming techniques. - [KW_15] 2. It has a basic knowledge of the graphic representation of the structure, knows the rules of projection, creating sections, dimensioning, applications engineering, operation and use of tools for design and visualization of engineering and construction projects to save these objects. - [KW_19] 3. Knowledge of the typical engineering technologies in the field of the studied direction and versed in the latest trends and development within the studied direction. - [KW_20]		
Skills: 1. He can choose the development environment, tools, simulate and execute measurements of basic electrical systems; is able to develop and present the documentation with the task of engineering with the use of tools for the rapid prototyping of electrical and electromechanical. - [K_U19] 2. Able to work individually and in a team knows how to estimate the time needed for the commissioned work; is able to develop and implement a work schedule that ensures meeting the deadline. - [K_U29] 3. He has the skills of self-education, including in order to improve professional competence and social. - [K_U30]		
Social competencies:		

1. Aware of the limitations of their knowledge and understands the need for further education. - [K_K01]
2. Potrafi precyzyjnie formułować pytania, służące pogłębieniu własnego zrozumienia danego tematu lub odnalezieniu brakujących elementów rozumowania, prawidłowo rozstrzyga dylematy związane z wykonywaniem zawodu. - [K_K02]
3. Able to think and act in an entrepreneurial, can work as a team; understands the need to work systematically on all projects that have long-term character. - [K_K03]

Assessment methods of study outcomes

Lecture:

- Pass lecture (job control) evaluating the ability of the student.

Lab:

- Checking and rewarding knowledge necessary for the accomplishment of the problems,
- Evaluation based on the current progress of the implementation of tasks in the form of computer design,
- continuous evaluation for each course - rewarding gain skills they met tools and methods of computer CAD system.

Get bonus points for the activity in the classroom, and in particular for:

- Proposing to discuss additional aspects of the subject;
- The effectiveness of the application of knowledge when solving problems inflicted;
- Comments relating to the improvement of teaching materials.

Course description

Basics of technical drawing. The basic elements and tools of AutoCAD environment. Modeling and digital prototyping of technical objects and machine parts. Implementation of the design task using AutoCAD system. Issues two and three-dimensional in the computer writing technical design. The base model parameterization technical object. The rules for creating technical documentation. Extracting data design and data exchange between different CAD systems.

Basic bibliography:

1. Jaskulski A. Autocad 2016 / LT2016 / 360 +. Kurs projektowania parametrycznego i nieparametrycznego 2D i 3D, Wydawnictwo Naukowe PWN SA, Warszawa 2015
2. Chlebus E. Techniki komputerowe CAx w inżynierii produkcji, WNT, Warszawa 2000.
3. AUTOCAD system documentation.

Additional bibliography:

1. Documentation CAD programs available on the web pages.

Result of average student's workload

Activity	Time (working hours)
1. Participation in lecture classes	30
2. Participation in laboratory classes	30
3. Participation in the consultations related to the implementation of the education process, in particular laboratory.	10 20
4. Preparation for laboratory classes	10
5. Preparation and participation in the completion of the lecture	

Student's workload

Source of workload	hours	ECTS
Total workload	100	4
Contact hours	72	3
Practical activities	50	2