

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject 3D graphics and computer visualization		Code 1010341731010329411
Field of study Mathematics in Technology	Profile of study (general academic, practical) general academic	Year /Semester 2 / 3
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: First-cycle studies (Polish Qualifications Framework level six)	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) major		(university-wide, from another field) university-wide
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. +48 61 665 2595 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 and WINDOWS operating system. [K_W04 (P6S_WG)]
2	Skills	Can use the knowledge and methods and tools to solve typical engineering tasks. [K_U10 (P6S_UW)]
3	Social competencies	Is aware of deepening and expanding knowledge to solve newly created technical problems. [K_K02 (P6S_KK)]
Assumptions and objectives of the course: Acquiring the ability to use computer software supporting the visualization of technical objects and creating graphic documentation. Acquiring the skills of computer modeling and visualization of simple elements of technical constructions in two-dimensional and three-dimensional systems.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Possessing ordered and theoretically founded knowledge of computer science, including numerical methods; knowledge of at least one software package or programming language. - [K_W06 (P6S_WG)] 2. Basic knowledge of engineering graphics. - [K_W09 (P6S_WG)] 3 Knowledge of typical engineering technologies and knowledge of the latest development trends in the field of study. [K_W11 (P6S_WG)]		
Skills: 1. The ability to select appropriate sources of knowledge and obtain the necessary information from them. Ability to make a critical analysis and evaluation of solutions for complex and unusual engineering problems - [K_U06 (P6S_UW)] 2. Ability to prepare documentation or prepare a speech with a multimedia presentation related to the implementation of an engineering task using specialized terminology. - [K_U12 (P6S_UK)] 3. Ability to work individually and in a team. The ability to estimate the time needed for the implementation of the task ordered. The ability to develop and implement a schedule of work to ensure that the deadline is met. - [K_U14 (P6S_UO)]		
Social competencies:		

<p>1. Is aware of the level of his knowledge in relation to the conducted research in exact and technical sciences. [K_K01 (P6S_KK)]</p> <p>2. Is aware of deepening and expanding knowledge to solve newly created technical problems. [K_K02 (P6S_KK)]</p> <p>3. He is aware of his social role as a graduate of a technical university, he is ready to disseminate popular science content to the society and to identify and resolve basic problems related to the field of study. - [K_K05 (P6S_KR)]</p>

Assessment methods of study outcomes

<p>Lecture: - Pass lecture (job control) evaluating the ability of the student.</p> <p>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.</p> <p>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.</p>

Course description

Interactive lecture, laboratories supplemented with multimedia presentations. Basics of technical drawing. Basic elements and tools of the AutoCAD environment. Modeling and computer visualization of technical objects. Implementation of a design task using the AutoCAD system. Two and three-dimensional issues in the task of visualization of a technical object. Basics of parameterization in digital modeling and visualization of a technical object. Data exchange between different CAD systems.
 Update: 10.2018

Basic bibliography:

1. Jaskulski A. Autocad 2016 / LT2016 / 360 +. Kurs projektowania parametrycznego i nieparametrycznego 2D i 3D, Wydawnictwo Naukowe PWN SA, Warszawa 2015
2. Folega P., Wojnar G., Czech P.; Zasady zapisu konstrukcji Maszyn, Wydawnictwo Politechniki Śląskiej, Gliwice 2014.
3. Dokumentacja systemu AUTOCAD

Additional bibliography:

1. Dokumentacja programów CAD umieszczona na stronach internetowych

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
4. Preparation for laboratory classes	20
5. Preparation and participation in the completion of the lecture	15

Student's workload

Source of workload	hours	ECTS
Total workload	105	4
Contact hours	60	3
Practical activities	55	2