

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject CAD/CAM		Code 1010641261010640320
Field of study Mechanical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 6
Elective path/specialty Mechatronics	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: 1 Classes: - Laboratory: 3 Project/seminars: -		No. of credits 3
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 %) 3 100% 3 100%
Responsible for subject / lecturer: dr hab. inż. Piotr Krawiec prof. PP email: Piotr.Krawiec@put.poznan.pl tel. 61 665 2242 Working Machines and Transportation 60-965 Poznań, ul. Piotrowo 3		Responsible for subject / lecturer: dr inż. Maciej Berdychowski email: Maciej.Berdychowski@put.poznan.pl tel. 61 224 4514 Working Machines and Transportation 60-965 Poznań, ul. Piotrowo 3
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	News from the basics of computer-aided design and engineering graphics. Knowledge of modeling in 3D CAD systems.
2	Skills	Efficient use of Microsoft Office, the ability to model parts and assemblies in systems CAD 3D.
3	Social competencies	Able to work in a group performing different roles.
Assumptions and objectives of the course: Knowledge of principles and methods for recording design in CAD / CAM systems. Knowing the rules of using the computer system exemplary CAD / CAM.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has a basic knowledge of the standardized principles of engineering drawing and engineering graphics - [K1A_W06] 2. Has an elementary knowledge of the fundamentals of computer science, i.e. computer architecture, binary, decimal, and hexadecimal counting system. - [K1A_W13]		
Skills:		
1. Is able to use popular packages for technical drawings edition and 3D modeling in sufficient detail to enable the creation of documentation in accordance with the applicable standards and models of virtual machines in three-dimensional space. - [K1A_U12] 2. Is able to design a technology of simple machine element manufacturing, technology of assembly and disassembly of a machine. - [K1A_U18]		
Social competencies:		
1. Understands the need for lifelong learning; is able to inspire and organize the learning process of others - [K1A_K01] 2. Is aware of and understands the importance and impact of non-technical aspects of mechanical engineering activities and its impact on the environment and responsibility for own decisions. - [K1A_K02] 3. Is aware of the importance of behavior in a professional manner, compliance with the rules of professional ethics and respect for cultural diversity. - [K1A_K03] 4. Has a sense of responsibility for one's own work and is willing to comply with the principles of teamwork and taking responsibility for collaborative tasks. - [K1A_K04]		

Assessment methods of study outcomes		
Lecture, lab credit.		
Course description		
<p>The structural geometry of the solid. The structural geometry of the surface. Methods of describing mathematical curves in 3D CAD computer systems. Hermit approximating curves and Bezier, B-spline curves, surfaces, bezier and B-spline. Transforming 3D space. Animations, generating a sequence of images. Developing, editing and archiving of technical documentation in CAD / CAM systems. Translation CAD geometry formats for 2D and 3D. CAM machining methods, the development of CAM machining, machine tool programming using CAM.</p>		
Basic bibliography:		
<ol style="list-style-type: none"> 1. Przybylski W., Deja M., Komputerowo wspomagane wytwarzanie maszyn. WNT, Warszawa 2007 2. Marciniak K, Putz B., Wojciechowski J., Obróba powierzchni krzywoliniowych na frezarkach sterowanych numerycznie. WNT, Warszawa 1988 3. Marciniak M (red) Elementy automatyzacji we współczesnych procesach wytwarzania. Wydawnictwo Politechniki Warszawskiej 2007 4. Altinas Y., Manufacturing Automation, Cambridge University Press 2006 5. Honczarenko J. Obrabiarki sterowane numerycznie WNT Warszawa 2008 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. Kiciak P. Podstawy modelowania krzywych i powierzchni : zastosowania w grafice komputerowej WNT 2005 		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	15	
2. Consultation on the material given in lectures	1	
3. Exam Preparation	2	
4. Participation in the exam	2	
5. Laboratory classes	45	
6. Preparation for laboratory	12	
7. Preparing to pass laboratory	6	
8. Consultation about laboratory	2	
9. Participation in laboratory exercises passing	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	87	3
Contact hours	67	3
Practical activities	67	3