

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Computer Aided Design		Code 1010602121010620508
Field of study Mechanical Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 2
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 Lecture: 1 Classes: - Laboratory: 2 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		ECTS distribution (number and %)
Responsible for subject / lecturer: prof. dr hab. inż. Marek Morzyński email: Marek.Morzyński@put.poznan.pl tel. 665 2778 Faculty of Working Machines and Transportation ul. Piotrowo 3 60-965 Poznań		Responsible for subject / lecturer: dr inż. Witold Stankiewicz email: Witold.Stankiewicz@put.poznan.pl tel. 665 2167 Faculty of Working Machines and Transportation ul. Piotrowo 3 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge of structure mechanics, continuum mechanics and mathematics, as for all graduates of Mechanics (first degree)
2	Skills	Basic skills in structure mechanics, continuum mechanics and mathematics, as for all graduates of Transportation (first degree)
3	Social competencies	Student is able to cooperate in a group, taking the different roles. Student is able to set priorities important to solve given tasks. The student demonstrates self-reliance in solving problems, acquiring and improving his knowledge and skills.
Assumptions and objectives of the course: Learning basic CAD tools for mechanical design.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Knows the basic methods, numerical techniques and tools used in solving simple engineering tasks in the field of mechanics - [T2A_W07]		
2. Has detailed knowledge covering key issues in the field of computer engineering (in particular Finite Element Method) - [T2A_W04]		
3. Has knowledge of the development trends and the most important new achievements in the field of FEM in mechanics - [T2A_W05]		
Skills:		
1. Is able to obtain information from the literature, internet, databases and other sources in Polish and English. Can integrate the information to interpret and learn from them, create and justify opinions. - [T2A_U01]		
2. Is able to prepare a study in Polish and a short scientific report in English presenting the results of their research - [T2A_U03]		
3. Is able to decide on further learning and to realize the process of self-education - [T2A_U05]		
4. Is able to assess the suitability of methods and tools to solve engineering tasks typical of mechanics, can solve the complex engineering task in the IT environment - [T2A_U18]		
5. Is able to use the selected numerical methods and FEM programs for formulating and solving simple research problems and engineering tasks - [T2A_U09]		
Social competencies:		

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| 1. Understands the need for lifelong learning; able to inspire and organize the learning process of others - [T2A_K01] |
| 2. Is able to interact and work in a group, taking different roles - [T2A_K03] |
| 3. Can properly identify priorities for implementation of tasks specified by himself or others - [T2A_K04] |

Assessment methods of study outcomes		
Oral and written tests. Assessment of the skills of problem solving in the field of continuum mechanics using known software packages		
Course description		
The essence of virtual engineering, custom application examples and calculations, ways to create a virtual model of a mechanical, graphical representation of 3D models, VRML, FEA and FDM in mechanics, coupled problems		
Basic bibliography:		
1. O.C. Zienkiewicz: Metoda Elementów Skończonych. WNT Warszawa 1977		
2. 1.J. Kruszewski, E. Wittbrodt, Z. Walczyk: Drgania układów mechanicznych w ujęciu komputerowym, T II, zagadnienia wybrane, Seria Wspomaganie Komputerowe CAD/CAM, WNT-Warszawa, 1996		
3. M. Kleiber: Komputerowe Metody Mechaniki Ciał Stałych, PWN 1995, ISBN 83-01-11740-0		
4. E. Rusiński, Metoda Elementów Skończonych.COSMOS/M, WKŁ Warszawa 1994		
Additional bibliography:		
Result of average student's workload		
Activity	Time (working hours)	
1. Lecture participation	15	
2. Fixation of the lecture	5	
3. Preparing to pass (lecture)	5	
4. Participation in passing the lecture	2	
5. Preparation for laboratory exercises	20	
6. Participation in laboratory exercises	30	
7. Fixation of exercises content and reporting	14	
8. Consultations	3	
9. Preparing to pass (lab.)	3	
10. Participation in passing the lab.	1	
Student's workload		
Source of workload	hours	ECTS
Total workload	98	4
Contact hours	51	2
Practical activities	71	3