STUDY MODULE DESCRIPTION FORM

Name of the module/subject	Code
Advanced methods of computer aided design	**1010632221010657578**

Field of study	Profile of study (general academic, practical)	Year /Semester
Mechanika i budowa maszyn	**general academic**	**1 / 2**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Gas technology and renewable energy	**English**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
Second-cycle studies	**full-time**

No. of hours	No. of credits
Lecture: **1** Classes: **-** Laboratory: **2** Project/seminars: **-**	**3**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
basic	**university-wide**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**3 100%**
Technical sciences	**3 100%**

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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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 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 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:

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 a virtual model of a mechanical, graphical representation of 3D models, VRML, FEA and FDM in mechanics, coupled problems.
Basic bibliography:
Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Lecture participation	15
2. Consolidation of lecture content	5
3. Lecture pass preparation	5
4. Assessment participation	2
5. Preparation for laboratory classes	20
6. Participation in laboratory classes	30
7. Consolidation of exercises content and reporting	14
8. Consultations	3
9. Laboratory pass preparation	3
10. Assessment participation (lab)	1

Student's workload

Source of workload	hours	ECTS
Total workload	98	3
Contact hours	51	0
Practical activities	71	3