# STUDY MODULE DESCRIPTION FORM

| Name of the module/subject | | Code |
|---|---|---|
| **Computer Aided Design** | | **1010632121010620508** |
| Field of study: **Mechanical Engineering** | Profile of study (general academic, practical): **(brak)** | Year /Semester: **1 / 2** |
| Elective path/specialty: **Thermal Engineering** | 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:**

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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. 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 |