



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Passong Project

|                                       |  | Course            |
|---------------------------------------|--|-------------------|
| Field of study                        |  | Year/Semester     |
| Mechanical and Automotive Engineering |  | 2/2               |
| Area of study (specialization)        |  | Profile of study  |
| Machines                              |  | general academic  |
| Level of study                        |  | Course offered in |
| Second-cycle studies                  |  | Polish            |
| Form of study                         |  | Requirements      |
| full-time                             |  | compulsory        |

|                                |                    | Number of hours     |
|--------------------------------|--------------------|---------------------|
| Lecture                        | Laboratory classes | Other (e.g. online) |
| 0                              | 0                  | 0                   |
| Tutorials                      | Projects/seminars  |                     |
| 0                              | 4                  |                     |
| <b>Number of credit points</b> |                    |                     |
| 5                              |                    |                     |

|  |  | Lecturers                            |
|--|--|--------------------------------------|
| Responsible for the course/lecturer:       |  | Responsible for the course/lecturer: |
| mgr inż. Jacek Marcinkiewicz               |  |                                      |
| email: jacek.marcinkiewicz@put.poznan.pl   |  |                                      |
| tel. 61 665 28 82                          |  |                                      |
| Faculty of Civil and Transport Engineering |  |                                      |
| ul. Piotrowo 3, 60-965 Poznań              |  |                                      |

**Prerequisites**

Has a basic knowledge of the life cycle of machines. It has an orderly, theoretically founded, knowledge covering key issues useful in the design of working machines. He knows the rules rational design of working machines. Can design selected groups of machines working systems - especially drive and working systems made of components available on the market). He can use computer programs supporting the design process Is aware of the importance and understands the non-technical aspects and effects of engineering activities, including its impact on the environment, i related responsibility for the decisions made.

### Course objective

Practical use of knowledge gained in the process of previous education. Capture ability to independently solve problems in the field of study and specialization, design of equipment and technological lines for



industry, construction of working machines and methods their research and operation. Ability to calculate the strength of machines and their structures.

### Course-related learning outcomes

#### Knowledge

He knows the modern engineering methods of computer graphics and the theoretical basis of engineering calculations using the finite element method.

Has extended knowledge of modern construction materials such as carbon plastics, composites, ceramics, in terms of their construction, processing technology and applications.

Has a general knowledge of the principles and methods of constructing working machines, in particular the methods of functional and strength calculations, mathematical optimization of mechanical structures and modeling of machine structures in 3D systems.

#### Skills

He can correctly select the optimal material and its processing technology for typical parts of working machines, taking into account the latest achievements in material engineering.

Can perform a medium complex design of a working machine or its assembly using modern CAD tools, including tools for spatial modeling of machines and calculations using the finite element method.

He can design the technology of exploitation of a selected machine with a high degree of complexity.

#### Social competences

He is ready to critically assess his knowledge and received content.

Is willing to think and act in an entrepreneurial manner.

Is ready to fulfill professional roles responsibly, taking into account changing social needs, including:

- developing the professional achievements,
- maintaining the ethos of the profession,
- observing and developing the rules of professional ethics and acting towards the observance of these rules.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Assessment of the completed project.

### Programme content

Mastering the principles of independent solving of engineering tasks and preparation for the implementation of a master's thesis in the field of Working Machines.

### Teaching methods



Consultations with the lecturer.

### Bibliography

Basic

Kłos Z. Rozprawy naukowe. Wydawnictwo Politechniki Poznańskiej, 2011

Additional

### Breakdown of average student's workload

|  | Hours | ECTS |
|--|-------|------|
| Total workload   | 75    | 5,0  |
| Classes requiring direct contact with the teacher  | 9     | 1,0  |
| Student's own work (literature studies, preparation of a transitional work, getting acquainted with the subject of the work and expanding knowledge related to the subject) <sup>1</sup> | 66    | 4,0  |

<sup>1</sup> delete or add other activities as appropriate