



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Passing Project

### Course

Field of study

Mechanical and Automotive Engineering

Area of study (specialization)

Hybrid powertrain systems

Level of study

Form of study

Year/Semester

2/3

Profile of study

Course offered in

polish

Requirements

### Number of hours

Lecture

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

4

### Number of credit points

5

### Lecturers

Responsible for the course/lecturer:

Prof. DSc., DEng. Ireneusz Pielecha

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Faculty of Civil and Transport Engineering

Piotrowo 3 street, 60-965 Poznan

Responsible for the course/lecturer:

### Prerequisites

KNOWLEDGE: Has knowledge of the construction, operation and testing of internal combustion engines

SKILLS: Is able to independently use various sources of information, also in foreign languages. Can edit technical texts.

SOCIAL COMPETENCES: Demonstrates independence in solving basic engineering tasks.

### Course objective

Presentation of the purpose, scope and list of topics for transitional works. Preparing the student to write an engineering diploma thesis and its correct editorial preparation



## Course-related learning outcomes

### Knowledge

Has extended knowledge of mathematics in the field of numerical methods used in optimization tasks, computer simulation, linear algebra, interpolation and approximation.

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

Has extended knowledge of the standards for working machines in the field of methods of calculating and testing machines, safety, including road safety, environmental protection as well as mechanical and electrical interface.

### 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.

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

Is able to use the acquired knowledge in the field of thermodynamics and fluid mechanics to simulate thermodynamic processes in technological systems of machines, using specialized computer programs.

### Social competences

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

Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to consult experts in case of difficulties in solving the problem on its own.

It is ready to fulfill social obligations, inspire and organize activities for the benefit of the social environment.

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Discussion, combined with the assessment of exemplary implementation of the transitional works.

## Programme content

Scientific work - definition and unique features. Types of scientific works. The structure of the transitional work, language, style and editorial issues. The process of writing a transitional thesis (the genesis of the topic, preparatory activities, source materials). Citations and copyrights. The role of the promoter in the process of creating a job. Principles of evaluation of the transitional work. Basics of the theory of the experiment (research planning, building models of the research object, analysis of results)

## Teaching methods

1. Lecture with multimedia presentation
2. Discussion, presentations of students



## Bibliography

### Basic

1. Leszek W., Badania empiryczne, wyd. ITE, Radom 1997.
2. Majchrzak J., Mendel T., Metodyka pisania prac magisterskich i dyplomowych. Wydawnictwo Akademii Ekonomicznej w Poznaniu, Poznań 2005.
3. Wiśłocki K., Metodologia i redakcja prac naukowych. Wydawnictwo Politechniki Poznańskiej, Poznań 2013.
4. Pułło A., Prace magisterskie i licencjackie. PWN, Warszawa 2000.
5. Korzyński M., Metodyka eksperymentu. Wydawnictwo NT, Warszawa 2006.
6. Szkutnik Z., Metodyka pisania pracy dyplomowej. Wyd. Poznańskie, ISBN 8371773714, 2005

### Additional

1. Leszek W. Nieempiryczne procedury badawcze w naukach przyrodniczych i technicznych. Wydawnictwo ITE, Radom 1999.
2. Polański Z., Planowanie doświadczeń w technice. PWN, Warszawa

## 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 for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	66	4,0

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