COURSE DESCRIPTION CARD - SYLLABUS

Course name
Electric systems in means of transport

Course

Field of study
Transport
Area of study (specialization)
-
Level of study
First-cycle studies
Form of study
part-time
Year/Semester
2/3
Profile of study
general academic
Course offered in
Polish
Requirements
compulsory

Number of hours

Lecture
9
Laboratory classes
0
Other (e.g. online)
0
Tutorials
0
Projects/seminars
0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:
dr inż. Ryszard Mańczak
Responsible for the course/lecturer:
dr inż. Jakub Kowalczyk

Prerequisites

Student has basic knowledge of mathematics and physics

Course objective

Getting to know the theoretical and practical foundations of the operation of DC and AC circuits as well as the construction and operation of selected electrical machines.

Course-related learning outcomes

Knowledge

The student has extended and in-depth knowledge of physics useful for formulating and solving selected technical tasks, in particular for correct modeling of real problems.

The student has ordered and theoretically founded general knowledge in the field of key issues of technology and detailed knowledge in the field of selected issues in this discipline of transport engineering

Skills

Student is able to make a critical analysis of the functioning of transport systems and other technical

solutions and to evaluate these solutions, including: is able to effectively participate in the technical inspection and assess the transport task from the point of view of non-functional requirements, has the ability to systematically conduct functional tests.

The student is able to design elements in the field of transport engineering and construct simple machines.

Social competences

The student is aware of the importance of knowledge in solving engineering problems, knows examples and understands the causes of malfunctioning transport systems that have led to serious financial and social losses or to serious loss of health and even life.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Exam at the end of the semester.

Programme content

DC electric circuits (basic concepts, linear and nonlinear elements, Ohm's law, Kirchhoff's laws, methods of circuit solving, work, power, energy).

Electric circuits of alternating current (basic concepts, generating alternating current, Ohm's law and Kirchhoff's laws, vector and time graphs, work, power, energy).

Transformers - structure and operation.

Electric motors - structure and operation.

Measuring instruments and electrical measurements.

Teaching methods

Auditorium lecture

Bibliography

Basic

1. Opydo W.: Elektrotechnika i elektronika dla studentów wydziałów nieelektrycznych, Wydawnictwo Politechniki Poznańskiej, Poznań, 2012.

2. Opydo W., Kulesza K., Twardosz G.: Urządzenia elektryczne i elektroniczne. Przewodnik do ćwiczeń laboratoryjnych, Opydo W., Kulesza K., Twardosz G, Wydawnictwo Politechniki Poznańskiej, Poznań, 2004.

Additional

1. Bogdan Miedziński: Elektrotechnika. Podstawy i instalacje elektryczne, Wydawnictwo Naukowe PWN, Warszawa 1997.

2. Praca zbiorowa: Vademecum elektryka. COSiW.SEP.Warszawa.2005

Breakdown of average student's workload

	Hours	ECTS
Total workload	24	2,0
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) [1]	15	1,0

[1] delete or add other activities as appropriate