



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Introduction to scientific research [S1Elmob1>PdBN]

### Course

Field of study  
Electromobility

Year/Semester  
4/7

Area of study (specialization)  
–

Profile of study  
general academic

Level of study  
first-cycle

Course offered in  
polish

Form of study  
full-time

Requirements  
compulsory

### Number of hours

Lecture  
0

Laboratory classes  
0

Other (e.g. online)  
0

Tutorials  
0

Projects/seminars  
15

### Number of credit points

2,00

### Coordinators

### Lecturers

### Prerequisites

The student should have basic knowledge, skills and competencies acquired in the previous years of studies, enabling him to realizing scientific research.

### Course objective

The main aim of the course is to familiarize students with the methodology and issues of scientific research, teaching them the skills to formulate research problems and preparation them for conducting of scientific research realized in the Departments of the Institute of Electrical Engineering and Electronics of PUT.

### Course-related learning outcomes

Knowledge:

1. has basic knowledge necessary to understand the social, ethical, economic, ecological, legal and other non-technical determinants of engineering activities.
2. has knowledge and understands the fundamental dilemmas of modern civilization related to the mass use of electromobility; is aware of the latest development trends related to the field of study.

Skills:

1. knows how to use literature sources, integrate the obtained information, evaluate it, interpret it and

draw conclusions in order to solve complex and unusual problems in the field of electromobility.  
2. ables to plan and organize individually work and work in a team (including the development and implementation of a work schedule ensuring meeting the deadline), applies the principles of occupational health and safety, and knows how to work in interdisciplinary teams.

Social competences:

1. understands the importance of improving professional, personal and social competences; is aware that knowledge and skills in the field of electromobility are evolving rapidly.
2. understands the importance of knowledge in solving problems in the field of electromobility; is aware of the need to use the knowledge of experts when solving engineering tasks beyond their own competences.
3. understands the need to formulate and transfer information and opinions to the society on the positive and negative aspects of electromobility, and is ready to act for the public interest.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Verifying the assumed learning outcomes is carried out by controlling attendance at classes, participating in discussions during classes and assessing the increase in the ability to use the learned principles and methods.

### Programme content

As part of the classes, the lecturers will familiarize students with the methodology and issues of research conducted in individual scientific departments forming the Institute of Electrical Engineering and Electronics of PUT. Definitions in the field of scientific research (science, knowledge, scientific work, methodology, method), principles of conducting scientific research (materials processing, results processing, etc.), research methods in research (experimental, modeling, simulation), editing of scientific papers.

### Teaching methods

Presentations, discussions and consultations in the field of ongoing research projects.

### Bibliography

Basic:

Scientific and technical literature: textbooks, monographs, articles, catalogs, websites, documentation, guidelines and standards provided by those managing theses.

Additional:

Wisłocki K.: Metodologia i redakcja prac naukowych, Wydawnictwo Politechniki Poznańskiej, 2013.  
Leszek W.: Wybrane zagadnienia metodyczne badań empirycznych. Wyd. Instytutu Technologii i Eksploatacji, Radom 2006.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	53	2,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation)	38	1,50