

**DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SUPERVISOR DECLARING/CONDUCTING COURSE: PŁOCHOCKA-MAUDE
PAULINA,
DEPARTMENT: Wydział Podstawowych Problemów Technicznych
SCIENTIFIC DISCIPLINE: physics sciences

COURSE CARD

Course name in Polish: Najnowsze kierunki badań w dyscyplinie nauki fizyczne

Course name in English: The latest research directions in physics sciences

Course language: English

The course is intended for all PhD students: YES

- 1) ~~BASIC COURSE~~
- 2) ~~SPECIALIST COURSE~~
- 3) ~~SEMINAR~~
- 4) ~~HUMANISTIC COURSE~~
- 5) ~~LANGUAGE~~
- 6) ~~RESEARCH SKILLS~~

Subject code: NFQ100266W

* delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)	30			
Grading	Exam	Exam	Oral presentation	Exam, inspection, evaluation classes

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Solid state Physics
2. Basic in spectroscopy
3. Basic in transport measurements

COURSE OBJECTIVES

- C1 Learning the properties of layered materials and their applications
- C2 Learning the properties of perovskites and their applications
- C3 topological materials in solid state physics

PROGRAM CONTENTS

Form of classes		Number of hours
Wy1	Layered materials and their classification	1
Wy2	Graphene and it' applications	1

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Wy3	Semiconducting layered materials	1
Wy4	Magnetic layered materials	1
Wy5	Superconducting layered materials	1
Wy6	Van der Waals multilayers: interlayer excitons	1
Wy7	Van der Waals multilayers: proximity induced magnetism and superconductivity in bilayer graphene	1
Wy8	Layered materials applications	1
Wy9	Properties of perovskites	1
Wy10	Layered perovskites	1
Wy11	Nanocrystals	1
Wy12	Perovskites applications	1
Wy13	High Tc superconductors	1
Wy14	Topological materials	1
Wy15	Topological materials	1
	Total hours	15

TEACHING TOOLS USED
N1. Presentation N2. Lecture N3.

ACHIEVED SUBJECT LEARNING OUTCOMES		
Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Knowledge	P8S_WG	
Knowledge	P8S_WK	

PRIMARY AND SECONDARY LITERATURE
<u>PRIMARY LITERATURE:</u> Recently published scientific papers
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS) Paulina Plochocka Maude paulina.plochocka-maude@pwr.edu.pl