



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Specialization laboratory

Course

Field of study

Technical Physics

Area of study (specialization)

Nanotechnology and Functional Materials

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

2/2

Profile of study

practical

Course offered in

polish

Requirements

elective

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

75

Tutorials

Projects/seminars

30

Number of credit points

9

Lecturers

Responsible for the course/lecturer:

Prof. dr. hab. Tomasz Martyński

Responsible for the course/lecturer:

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Faculty of Materials Engineering and Technical

Physics

Piotrowo street 3, 60-965 Poznan, Poland

Prerequisites

Knowledge of experimental physics and basic specialist knowledge of nanotechnology and functional materials as well as quantum engineering and metrology. The ability to solve physical problems based on the possessed knowledge, the ability to obtain information from the indicated sources.

Understanding the need to expand your competences, readiness to cooperate as part of the team.

Course objective

1. To acquaint students with the basic measurement methods and techniques used in the supervisor's research studio, which will be used in research leading to the implementation of the topic of the thesis.



2. Performing preliminary research enabling planning the scope of research carried out for the purposes of the thesis.

Course-related learning outcomes

Knowledge

1. has in-depth knowledge of his specialization and is aware of the latest trends in physics and technology [K2_W01, K2_W02 and, depending on the subject of the thesis K2_W03– – K2_W11]

Skills

1. on the basis of scientific literature, independently interpret the results of laboratory measurements and draw conclusions [K2_U02]

2. can formulate a complex physical or technical problem, and then propose a methodical method of its solution [K2_U01, K2_U05, K2_U12]

3. draft the transitional work which is, inter alia test report with documented and pre-interpreted measurement results [K2_U03, K2_U04, K2_U06]

Social competences

1. can work independently and in a team on a given task, shows responsibility in this work [K2_K01]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

defence of the thesis and final examination/oral examination at the end of the semester

Programme content

Classes conducted under the supervision of the supervisor and the direct tutor (if appointed by the supervisor) in the supervisor's research laboratory. The classes are devoted to introducing the master's degree to the methodology of research work, mastering the theoretical foundations and experimental methods that will be used in the research carried out for the implementation of the master's thesis. A specialist workshop ends with the editing of a temporary work.

Teaching methods

Laboratory exercises: practical exercises, conducting experiments, modeling, discussion, team work.

Project: individual student project work, discussion,

consultations on implemented projects, workshops - discussions on the presented transitional works.

Bibliography

Basic

literature selected individually in accordance with the subject of the work.



Additional

literature selected individually in accordance with the subject of the work.

Breakdown of average student's workload

	Hours	ECTS
Total workload	240	9
Classes requiring direct contact with the teacher	105	5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	135	6

¹ delete or add other activities as appropriate