Title	Code
Advanced Specjaliity Laboratory (Zaaw.lab. spec.)	**1010402211010410662**
Field: **TECHNICAL PHYSICS**	Year / Semester: **1 / 1**
Specialty: **-**	Course: **core**
Hours: Lectures: **-** Classes: **-** Laboratory: **6** Projects / seminars: **-**	Number of credits: **6**
	Language: **polish**

Lecturer:

Nauczyciele akademiccy i doktoranci WFT.
Opiekun? prof. dr hab. Czajka Ryszard, Wydział Fizyki Technicznej,
ul. Nieszawska 13A, 60-965 Poznań, tel: (061) 665-3234,
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Faculty:

Faculty of Technical Physics
ul. Nieszawska 13A
60-965 Poznań
tel. (061) 665-3160, fax. (061) 665-3201
e-mail: office_dtpf@put.poznan.pl

Status of the course in the study program:

Core course of the study for Technical Physics, Faculty of Technical Physics.

Assumptions and objectives of the course:

Students should be acquainted with the basic methods and measurement techniques used in characterization of surfaces and nanostructures, simulation of physical properties of different molecular systems, determination of the chemical composition of materials, as well as preparation and characterization of the functional materials used in optoelectronics.

Contents of the course (course description):

laboratory exercises regarding basic subjects in physics realized at FofTPh devided to 4 laboratory exercises:

I Characterization methods of physical properties of surfa ces and nanostructures (Nano-characterization)

IA ? Analysis of surface electrical properties by means of atomic force microscopy

IB ? Imaging of magnetic domains on computer hard disks by means of magnetic force microscopy

IC ? Nanomechanical properties and nanoadhesion investigated by means of dynamic force microscopy

IIA Molecular modelling and simulation

IIB DFT ? density functional theory method

III Spectral analysis of solid state materials by means of spectrograph and laser microanalizator

IV Investigation methods of functional materials used In optoelectronics

Introductory courses and the required pre-knowledge:

Basic knowledge in general physics, in basis of nanotechnology, technology of the functional materials preparation and/or quantum engineering and metrology.

Courses form and teaching methods:

Laboratory exercises realized in 8-persons subgroups under supervision of specialists in a given field.

Form and terms of complete the course - requirements and assessment methods:

Evaluation of oral tests regarding the basic knowledge necessary to perform measurements during laboratory exercises, evaluation of laboratory skills and the written report.

Basic Bibliography:

1. Printed series of course lecture ?Solid State Spectroscopy?, editor: Mirosław Drozdowski, PUT Publishing House (in Polish) or C. Kittel. ?Introduction to solid state physics?.
2. Scientific bibliography recommended by supervisors of a given laboratory exercise.

Additional Bibliography:

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