| Title | Code |
|---|---|
| **Spontronics (Spintronika)** | **1010402211010410666** |
| Field: **TECHNICAL PHYSICS** | Year / Semester: **1 / 1** |
| Specialty: **-** | Course: **core** |
| Hours: Lectures: **2** Classes: **-** Laboratory: **-** Projects / seminars: **-** | Number of credits: **2** |
| | Language: **polish** |

## Lecturer:

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## 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:

The student will obtain basic knowledge of modern technology. The era of microelectronic is opening to a future of (nanoelektronics technology) spintronics.

## Contents of the course (course description):

Nowadays information technology is based on semiconductor and ferromagnetic materials.

Introduction and review of electronic devices in macroscopic scale. Quantum nature of the nanoworld . Introduced a variety of devices important in today?s nanotechnology. These have included semiconductor devices, tunnel junctions, magnetic devices and optical and electrical storage devices. Recently, a new branch of physics and nanotechnology , called magnetoelectronics, spintronics, or spin electronics, has emerged, which aims at simultaneously exploiting both the charge and the spin of electronics in the same devices.

The aim of this lecture is to present basic ideas and recent developments in the new field of spintronics and also present new direction in the development of magnetoelectronics in both the basic physics and the technology which will become the foundation of future electronics.

## Introductory courses and the required pre-knowledge:

Basic knowledge of classical physics and solid state physics.

## Courses form and teaching methods:

Lectures supported by multimedia presentation (DVD)

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

Written examination,

## Basic Bibliography:

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## Additional Bibliography:

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