

## Discipline Description

1	Discipline	Composite nanostructured materials
2	Year of Study, Speciality Specializations	4; 1-31 04 01 Physics (Physicist. Researcher); 1-31 04 01-01 06 Semiconductor and dielectric physics ; 1-31 04 01-01 07 Energy physics;
3	Term of Study	8
4	Number of Credits	1,5
5	Tutors	Professor, Doctor of Physics, A. Fedotov
6	Study Objectives	To demonstrate to students the fundamental ideas and physical/chemical principles of description and forming clean surfaces/interfaces in crystalline solids; to give knowledge of their atomic and electronic structure; to learn the main physical/chemical processes that determine real structure of surfaces/interfaces in crystalline solids and electronic devices on their base; to describe a role of surfaces/interfaces in the formation of properties of functional nanomaterials and low-dimensional solid-state devices; to get main competences and skills in the preparation and experimental study of surfaces/interfaces in functional nanomaterials and devices on their base.
7	Prerequisites	Fundamentals of general physics and mathematics, quantum mechanics, thermal dynamics, statistical physics, electrodynamics, electric engineering, electronic devices
8	Course Content	Introduction to the subject. Atomically clean surfaces. Dynamics of atoms at atomically clean crystalline surfaces. Band model of the atomically clean surfaces in crystals. The real surface. The internal boundaries (interface). Methods for the preparation of atomically-clean surfaces.
9	Literature Recommended	N. Gorbachuk. A. Fedotov. Functional nanomaterials. <a href="https://dl.bsu.by/pluginfile.php/111615/mod_resource/content/1/Electrically%20%D1%81onductive%20composites-eng-final.pdf">https://dl.bsu.by/pluginfile.php/111615/mod_resource/content/1/Electrically%20%D1%81onductive%20composites-eng-final.pdf</a>
10	Methods of Teaching	Lecture courses using modern teaching methods, information and communication technologies, methods of analysis and synthesis
11	Language of Teaching	English
12	Requirements, Current Assessment	Written tests, tests, seminars
13	Form of Current Assessment	Offset