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| **Speciality:** | **Nanotechnology** |
| **Field of study:** | Physics |
| **Level of education:** | bachelor degree |
| **Profile:** | General academic |
| **Speciality description:** | Nanotechnology in the Physics major is a proposal for a new specialisation that meets the interests of young people wishing to obtain an attractive profession in the European market. The aim of the created specialisation is to educate young people in the field of physics with professional knowledge of solid state physics, modern materials on a nanometric scale with industrial applications and their structural, electronic, optical and magnetic properties.Graduates of the nanotechnology specialisation have skills in:- analysis of research and design problems concerning devices of modern microelectronics;- modern research methods of solid state physics for testing modern electronic materials;- theoretical modelling of composite material structures and analysis of their physical properties;- the ability to work in a team of specialists working in research laboratories of industrial plants offering the use of modern technologies.Characteristics of studiesFull-time first degree studies in physics last 3 years (6 semesters). Classes within the specialisation start from the second year of studies. They mainly deal with issues such as the physical foundations of nanotechnology, nanostructure technology, nanosensors and computational nanotechnology. In addition to lectures and seminars, students also attend laboratory classes where they are introduced to methods of nanostructure fabrication and structural studies using tunneling and atomic force microscopes. During the final year of study, students attend a diploma seminar and prepare a thesis. The studies conclude with a diploma exam and the awarding of the Bachelor of Physics degree.As part of the studies, it is possible to take part of the course at partner centres in France (Le Mans, Angers, Reims) and in the Czech Republic (Ostrava). Students receive a grant for the trip within the framework of the Erasmus+ programme. Students have the opportunity to undertake work placements in research centres and industry abroad.Profile of the GraduateThe graduate will have the ability to use knowledge of basic physics and materials physics with particular emphasis on the specifics of 'small systems', the ability to find information in literature and databases. The graduate will have the ability to interpret and quantitatively describe physical phenomena in condensed matter. Graduates of nanotechnology will also have knowledge of the principles of operation of research apparatus used in the study of nanostructures and will be familiar with methods of obtaining and studying such structures. They will also have basic knowledge and skills related to the use and software of computer equipment and performing calculations of properties of small systems. In addition, graduates will have a good command of English to enable them to communicate freely and make use of English-language specialist literature in the fields of physics and nanotechnology.Graduates will be prepared to work in research laboratories of electronics and other high-technology plants.First-cycle graduates will be able to continue their education at the UJD Institute of Physics, majoring in physics, in second-cycle (master's) studies.Graduates of nanotechnology can find employment at home and abroad:- In specialised industrial and research laboratories- In emerging companies implementing innovative technologies- In Science and Technology Parks- In advanced technology centres |
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