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| Study Programme: Physics | | | |
| Course Unit Title: Applications of nanotechnology and nanomaterials | | | |
| Course Unit Code: FD18NPN | | | |
| Name of Lecturer(s): Full Professor Vladimir Srdić and Full Professor Vesna Bengin Crnojević | | | |
| Type and Level of Studies: PhD | | | |
| Course Status (compulsory/elective): Elective | | | |
| Semester (winter/summer): Winter | | | |
| Language of instruction: English | | | |
| Mode of course unit delivery (face-to-face/distance learning): Face-to-face | | | |
| Number of ECTS Allocated: 30 | | | |
| Prerequisites: | | | |
| Course Aims: Students will gain an extensive theoretical and practical knowledge's related to nanotechnology and applications of novel nanomaterials. | | | |
| Learning Outcomes: After completing the course and mastering the course the student should have acquired knowledge about the latest theoretical concepts and practical applications of nanostructures. Also, the student should acquire knowledge of modelling and simulation of nanostructures by using the latest software tools. The possibility of independent monitoring of relevant professional and scientific literature as well as independent research in these areas. | | | |
| Syllabus: The significance of nanotechnologies. Nanostructures and characterization techniques on a fine scale. Nanotechnology in biomedicine, energy, infrared technology, microwave systems, food industry, telecommunication systems. Sensor technology (Nanomembranes and their application in Plasmon sensors). Nanotechnology in environmental protection. Directions of the development of nanotechnology. Application software packages for modelling and simulation of nanostructures. | | | |
| Required Reading: 1. P. Prasad, "Nanophotonics", Wiley-Interscience, 2004. 2. S. A. Maier, "Plasmonics: Fundamentals and Applications", Springer, 2007 3. An adequate review articles from leading relevant scientific journals. | | | |
| Weekly Contact Hours: | Lectures: 5 | Practical work: 15 | |
| Teaching Methods: Lectures (2 hours per week), computer lab (1 hour per week). | | | |
| Knowledge Assessment (maximum of 100 points): 100 | | | |
| Pre-exam obligations | points | Final exam | points |
| Active class participation | | written exam | 30 |
| Test I and Test II | | oral exam | |
| Preliminary exam(s) | 25 | | |
| Seminar(s) | 45 | | |

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.