



МИНИСТЕРСТВО НА ОБРАЗОВАНИЕТО И НАУКАТА

Проект BG051PO001-3.1.07-0048 „Актуализиране на учебните планове и програми на специалностите във ФЕТТ, ФТК и МТФ на ТУ-София и създаване на нова съвместна магистърска специалност в съответствие с потребностите на пазара на труда“

DESCRIPTION OF THE COURSE

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| Name of the course: Nanotechnologies for Environmental Effectiveness in Telecommunications | Code: MMTN09.2 | Semester: 2 |
| Type of teaching: Lectures, laboratory and seminary work | Lessons per week L-1 hour LW-2 hours SW-1 hour | Number of credits 5 |

LECTURER:

Assoc. Prof. Ph. D. Boyanka Nikolova, phone: 965 3135, email: bnikol@tu-sofia.bg; Technical University of Sofia, Faculty of Telecommunications, Department of Technology and Management of Communication Systems

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COURSE STATUS IN THE CURRICULUM:

Optional for the students in master's degree in "Microtechnology and nanoinzhenering".

AIMS AND OBJECTIVES OF THE COURSE

The aim of the course is to provide students with a general overview of base methods for environmental effectiveness in telecommunications through the use of nanotechnologies and nanomaterials.

DESCRIPTION OF THE COURSE:

The main topics concern: Sources of electromagnetic radiation (EMR); Mechanisms of effects of EMR on humans; Standards governing the safety of EMR; Methods for EMR protection; Shielding of electromagnetic fields; Nanomaterials (nanostructured and nanodispersed) for the design and implementation of compact electromagnetic screens for wide frequency range; Methods and tools for reducing energy intensity and dimensions of telecommunications equipment; Utilization of telecommunications equipment.

PREREQUISITES: The course is based on knowledge in the fields of Chemistry, Physics, Material Sciences, Nanomaterials

TEACHING METHODS:

Lectures held by the lecturer and aided by means of auxiliary materials. Laboratory and seminary exercises are performed under the guidance of an assistant professor.

METHOD OF ASSESSMENT: Written exam in the end of 2 semester

INSTRUCTION LANGUAGE: Bulgarian

BIBLIOGRAPHY:

1. Borbotko T. V., N. V. Kolbun, L. M. Linkov "Anthropogenic sources of electromagnetic radiation. Human safety", Minsk 2008.
2. V. A. Bogush, T. V. Borbotko, A. V. Gusinskii, L. M. Linkov, A. A. Tamelo "Electromagnetic radiation. Methods and Remedies", Minsk 2003.
3. Anwar, Sohail (Editor), M. Yasin Akhtar Raja (Editor), Salahuddin Qazi (Editor), Mohammad Ilyas (Editor), "Nanotechnology for Telecommunications", CSC Press, 2010.