Basic Information:

Course Title: **ELECTRIC, OPTIC AND ELECTRO-OPTIC METHODS FOR CHARACTERIZATION OF NANOPARTICLES AND MACROMOLECULES (COLLOIDS, POLYMERS, BIOPOLYMERS AND BIOLOGICAL PARTICLES)**

Lecturer Prof. Viktoria Milkova, PhD
Phone•088 3333 924
Email •vmilkova@ipc.bas.bg

Total Teaching Hours•30 hours (25 hours lectures and 5 hours laboratory classes)

Annotation (up to 150 words)

The aim of the course is students to gain knowledge of the classical and modern methods for investigation of the electric state of colloidal systems, for characterisation of the surface electrical properties of colloidal particles and their connection with the colloidal stability, being of great practical importance. The emphasis is laid on the advantages of electro-optical methods to provide information on the shape, size distribution, molecular mass, refractive index and other characteristics of macromolecules and colloidal particles. *The course is addressed to PhD students in the field of physical chemistry, chemistry of polymers, biophysics, biochemistry, biotechnologies, etc.*

Course content (brief description by topics or modules)

Module 1. Theory of the electric double layer
Module 2. Electro-optic phenomena
Module 3. Electro-optical experiment
Module 4. Application of the electric light scattering method for investigation of the surface properties and stability of nanoparticles and colloid-polymer systems.

Teaching and assessment methods

In-person/distance learning / individual preparation
Written exam/presentation on a specific topic

Competencies acquired as a result of training (3—5 points)

Upon successful completion of the course, students will be able to:

- Enhance their understanding of the theory of the double electric layer
- Acquire new knowledge of the electric light scattering method
- Develop new theoretical and experimental skills for studying the surface properties of colloidal particles and colloid–polymer systems

Literature

Prepared lecture materials

ЦЕНТЪР ЗА ОБУЧЕНИЕ – БАН

1000 София
ул. „Сердика" № 4
http://edu.bas.bg

email: tdc-phd@cu.bas.bg
тел.: 02 987 31 67
02 979 52 60