Study program: Integrated academic studies of Pharmacy

Type and level of the study program: integrated academic studies

Course title: COLLOIDAL CHEMISTRY (PhII-COCH)

Teacher: Veljko S. Krstonošić

Course status: elective

ECTS Credits: 3

Condition: -

Course aim

Theoretical and practical knowledge about the properties, structures, preparation and behavior of colloidal systems.

Expected outcome of the course:

Fundamental knowledge regarding the behavior of colloidal systems which are basis for the pharmaceuticals.
Application of theoretical knowledge in practice

Course description

Theoretical education

1. The subject of the study and definition of colloid chemistry.
2. The classification of colloid systems.
3. Purification and separation of colloids.
4. Micellar colloids. Molecular structure surface active substances. Micelles formation. Solubilisation.
5. General structural properties and chemical structure of macromolecules. Formation of complex macromolecular structures.
6. The size, size distribution and shape of the colloids.
7. Kinetic properties of colloid systems. Diffusion, osmosis, sedimentation.
8. The optical phenomenon of the colloid system.
9. Surface phenomenon. Surface tension. Wetting, overflowing.
10. Viscosity of dilute colloid solutions and methods of measurements.
11. Rheology of colloidal systems and methods of measurement.
12. Electrical phenomena in colloids.
13. Coagulation of colloids.
14. Gels and membranes.

Practical education: exercises, other forms of education, research related activities

1. Preparation of dispersed systems (emulsions and suspensions).
2. Determination of the type of emulsion.
3. Determination of the size and particle size distribution of the emulsion.
4. Determination of the critical micelle concentration.
5. Determination of the molecular weight of macromolecules by viscometric method.

Literature

Compulsory

1. Lj. Đaković: "Colloid chemistry", Zavod za udžbenike i nastavna sredstva, Belgrade, 2006. (translated selected chapters from Serbian)
2. Lj. Đaković, P. Dokić: "Practicum of colloid chemistry", Zavod za udžbenike i nastavna sredstva-Beograd, Faculty of Technology -Novi Sad, 2003. (translated selected chapters from Serbian into English)

Additional

3. K. S. Birdi: "Handbook of Surface and Colloid Chemistry", CRC Press/Taylor & Francis, 2008.

Number of active classes				Other:
Lectures: 30	Practice: 15	Other types of teaching:	Research related activities:	

Teaching methods

Lectures and practice

Student activity assessment (maximally 100 points)

Pre-exam activities	**points**	**Final exam**	**points**
Lectures	10	Written	
Practices		Oral	50
Colloquium	20	.....	
Essay	20		