

Level: Specialist academic studies of chemistry				
Course title: Carbon clusters in nano medicine (SH-616)				
Status: elective				
ECTS: 5				
Requirements: none				
Learning objectives To introduce the physical characteristics, principles of chemical transformation of fullerenes carbon clusters and nano-tubes, graphens and potential applications of derivatives and nano composites in nanomedicine.				
Learning outcomes Studying the chemical properties of fullerene carbon clusters, nano-tubes, graphens with the emphasis on biologically active derivatives and nano composites and their potential applications in nano medicine.				
Syllabus The lectures address the following topics: concepts of carbon clusters, physical and chemical properties of fullerenes, nano-tubes, graphens and their commercial production. Chemical transformations of carbon clusters with the aim of increasing the solubility in polar solvents and the introduction of reactive functional groups as a precursor in the synthesis of new drugs and nano-composites. Physical methods of determination and separation of nanoparticles in solutions as well as thin layers: DLS, SEM, TEM, AFM, methods for nano particles separation. Biological properties of cluster derivatives and nano composites.				
Weekly teaching load				Other:
Lectures: 2	Exercises:	Other forms of teaching: 2	Student research:	