Course code	**IRL107**		
Course title	**DRUG DELIVERY: PRINCIPLES AND APPLICATIONS**		
General information			
Study programme	Graduate study „Drug research and development“, Graduate study „Medical chemistry“	Academic year	
Lecturer	Prof. Dr. Sc. Leo Frkanec		
Status	**Required**	Elective	
ECTS system			**3**
Course objectives			
The course objectives are to give students an insight into fundamental principles for optimizing drug delivery, drug targeting and controlled release based on biological, physical, chemical, supramolecular and pharmaceutical approaches.			
Course description			
This course is designed to provide students with an understanding of the principles, strategies, and materials used in controlled drug delivery systems. The course will cover the basic concepts and fundamentals of drug delivery, including basic physiology, pharmacokinetics and pharmacodynamics, drug diffusion and permeation, self-assembly, molecular devices and biological mimics and biomaterials used in drug delivery. Controlled release strategies for various administration routes will be discussed. The course will conclude with special topics on targeted drug delivery, gene delivery, and nano-technology in drug delivery. Course contents: 1. Basic pharmacology 2. Diffusion in biological systems 3. Drug permeation and transport 4. Biomaterials and modulation of drug activity 4. Drug administration methods 5. Macromolecule drug delivery and 6. Targeted drug delivery.			
Learning outcomes			
Principles of drug delivery, drug targeting and controlled release and their importance for biomedicine. Design a drug delivery, drug targeting and controlled release system for a specified application.			