Course title: Polymers in medicine and pharmacy – selectable/regular course

Number of contact hours: 30 hours (15h lectures, 15h laboratories)

ETCS credits: 2

Course description: The lecture reviews different types of polymers applicable in medicine and pharmacy, methods of their designing and preparation, as well as characterization of physicochemical and biological properties using various methods and instruments; applications in medicine and pharmacy will also be discussed. The laboratories consist of exercises on polymers production using different components and methods, physicochemical characterization and biological tests.

Program content

Lectures		
Number	**Subject matter**	**Hours**
L1	What are biocompatible polymers?	2
L2	Characterization of various biocompatible polymers synthesis methods	4
L3	Methods of biocompatible polymers physicochemical properties analysis	3
L4	Methods of biocompatible polymers biological properties analysis	3
L5	Application of biocompatible polymers in medicine and pharmacy	3

Laboratory		
Number	**Subject matter**	**Hours**
Lab1	Organizational laboratories, OHS training	3
Lab2	Synthesis of selected biocompatible polymer	4
Lab3	Analysis of physicochemical properties of synthesized polymer	4
Lab4	Analysis of biological properties of synthesized polymer	4

Education effects (P7S_UW, P7S_WG)**:**

- **knowledge**: student knows the most important types of polymers; knows the methods of their preparation and analysis of physicochemical and biological properties

- **skills**: student can synthesize various types of polymers and characterize their properties; can use the specific apparatus dedicated for polymers physicochemical and biological characterization; knows how to prepare high-quality research report from performed laboratory exercises

- **social**: student is able to work independently and in the group both at the laboratories and during preparation of the report

Literature: [1] Gajdziok J, Gonec R, Vetchy D — Biodegradable Polymers in Pharmacy and Medicine, Germany, 2016, GRIN Verlag; [2] Puoci F — Advanced Polymers in Medicine, London, 2015, Springer

Assessment method: Final test, completing the laboratories (presence and delivering of reports from each performed exercise)

Prerequisites: Basic knowledge in organic chemistry and technology

Primary target group: All specialties students

Lecturer: Marek Piątkowski, CUT Professor, DSc, PhD, Eng., MBA

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