

Course title: Physicochemistry of aero- and hydrogels – ~~regular~~ selectable course

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

ETCS credits: 2

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

Education effects (P7S_UW, P7S_WG):

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

- **skills:** student can synthesize various types of aero- and hydrogels and characterize their properties; can use the specific apparatus dedicated for aero- and hydrogels 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] Oksman K, Mathew A.P, Qvintus P, Bismarck A, Rojas O, Sain M — Handbook of Green Materials: Processing Technologies, Properties And Applications, Singapore, 2014, World Scientific Publishing; [2] Mortensen A — Concise Encyclopedia of Composite Materials, Amsterdam, 2007, Elsevier

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

Prerequisites: Basic knowledge in organic/inorganic chemistry and technology

Primary target group: All specialties students

Lecturer: Marek Piątkowski, PhD Eng

Contact person: Marek Piątkowski, PhD Eng, e-mail: mpiatkowski@chemia.pk.edu.pl