

Course title: Heterogeneous catalysis – ~~selectable~~ / regular course

Number of contact hours: 30 hours Exam. (15 h lectures, 15 h seminar)

ETCS credits: 3

Course description: The lecture considers a heterogeneous catalysis in practice. In particular, a base of heterogeneous catalysis, an important group of catalysts applied in chemical industry as well as the main preparation pathways of catalysts and characterization methods will be described. The seminar part consist of discussion on selected processes carried out in the presence of heterogeneous catalysts.

Education effects: P7S_UW, P7S_WG

- **knowledge:** student knows the most important types of catalysts applied in the chemical industry; knows the methods of their synthesis and recognizes the base methods of catalysts characterization.

- **skills:** student can describe the main groups of heterogeneous catalysts applied in the industry; can characterize the metallic, oxide and zeolites materials; can decide which of the catalysts will be the best solution for the considered process.

- **social:** student understands the reasons of proper selection of the heterogeneous catalysts from an economical and an environmental point of view.

Literature:

[1] J. Hagen „*Industrial Catalysis-A Practical Approach*” Wiley-VCH, 2006

[2] J. A. Moulijn, M. Makkee, A. E. van Diepen, „*Chemical process technology*” Wiley-VCH, 2013.

Assessment method: Final test

Prerequisites: Basic knowledge in catalysis, organic chemistry and technology

Primary target group: All specialties students

Lecturer: dr hab. inż. Piotr Michorczyk, Contact person: dr hab. inż. Piotr Michorczyk, e-mail: pmichor@pk.edu.pl