

Course title:	Spectroscopy and microscopy in catalysis
Institute/Division:	FACULTY OF CHEMICAL ENGINEERING AND TECHNOLOGY
Number of contact hours:	15 hours (15 h lectures)
Course duration:	1 semester (6 th semester of regular I cycle studies - spring)
ETCS credits:	1
Course description:	The aim of the course is to provide a fundamental knowledge about spectroscopic and microscopic methods and their use in catalysts characterization and design. Within the course, the student will gather knowledge about the commonly used methods for catalyst characterization such as FTIR, Raman, XRD, XPS, XAS, UV-Vis, SEM, TEM. During the course, the basics of designing and selection of catalyst characterization methods depending on the desires of information will be presented.
Education effects :	<ul style="list-style-type: none"> - <u>knowledge</u>: student has a knowledge in fundamental methods for catalysts characterization, student has a knowledge about proper selection of the physicochemical characterization methods depending on desired information; - <u>skills</u>: Student is able to describe the basics of interaction of light with matter, is able to classify spectroscopic methods depending of the energy of the light source used, is able to describe the parameters determined by the application of certain spectroscopic and microscopic methods.
Literature:	<p>[1] Gabor Somorjai — Introduction to surface chemistry and catalysis, Hoboken, 2010, JW&S</p> <p>[2] James F. Haw - In-Situ Spectroscopy in Heterogeneous Catalysis, 2002, Wiley-VCH Verlag GmbH</p> <p>[3] P. Jodłowski and J. Łojewska, in Molecular Spectroscopy---Experiment and Theory: From Molecules to Functional Materials, eds. A. Koleżyński and M. Król, Springer International Publishing, Cham, 2019, pp. 333–359.</p>
Assessment method:	Final test
Prerequisites:	Basic knowledge in organic and inorganic chemistry and technology.
Primary target group:	Students from all specialties
Lecturer:	dr hab. inż. P. Jodłowski
Contact person:	dr hab. inż. P. Jodłowski, pjodlowski@pk.edu.pl
Remarks:	The course is selectable