Title of Course	**Physical Chemistry**		
Semester	**Autumn/Spring**		
Teaching Hours per Course:	**Total**	**- Lectures:**	**- Tutorials:**
	30	30	-
ECTS Credits	2		
The content of education			
Aims of Course	The aim of the course is to obtain knowledge in the field of thermodynamics, thermochemistry, statics and kinetics of chemical reactions.		
Program	Equation of ideal gas state. Real gases (the virial equation of state, van der Waals equation), compressibility factor, principle of corresponding states. Thermodynamics: thermodynamic functions, Bridgman tables. Heat capacity. Thermodynamics' laws. Thermochemistry. Standard thermodynamic functions of reaction and formation. Chemical potential. Phase diagrams of pure compounds. Clapeyron equation. Vapor-liquid equilibria for binary systems, phase diagrams and interpretation. Ideal and real systems. Raoult's law, Henry's law. Liquid-liquid equilibria for binary and ternary systems. Types of diagrams and interpretation. Solid-liquid equilibria for binary systems. Phase diagrams and interpretation, cooling curves. Thermodynamic functions of mixing for ideal and real solutions. Statics of chemical reactions. The influence of conditions on the reaction equilibrium. Kinetics of chemical reactions. Kinetic equations, integral form. Subsequent, parallel, reversible reactions. The influence of temperature on the reaction speed. Theory of the active complex. Catalysis, autocatalysis. Methods for determining the reaction order and reaction rate constant.		
Conditions of completion	Mark from the written exam.		
Teacher	Prof. Andrzej Marciniak		