Name of the course	**Chemical engineering thermodynamics**
Number of instruction hours	20
Outline of course/module content	Concept of thermodynamic equilibrium, thermodynamic functions, stability criteria, ideal and real systems. Real gases and real gas mixtures: calculating pressure, temperature, volume, fugacity, compressibility coefficient, enthalpy, entropy. Real solutions: standard states, calculating excess properties and activity coefficients in electrolyte and polymer solutions. Phase equilibria: vapor-liquid equilibria at high temperatures and pressures, solubility of gases, liquid-liquid equilibria in polymer and electrolyte solutions, gas-solid equilibrium. Thermodynamics of irreversible processes, open systems, entropy production, phenomenological equations, Onsager relations, Prigogine principle, diffusion and thermodiffusion processes, evolution of systems.
Description of instruction methods	Instruction methods adapted individually to the students: lectures and/or consultations.
Description of course/module requirements	Formulation of the individual seminar paper related with the topic that is of the scientific or professional importance for the student.