Course title: **Basic ChemCAD simulations** – selectable course (spring/winter)

Number of contact hours: 30 hours computer laboratories

ETCS credits: 2

Course description: Computer classes shows how in practical way a ChemCAD software can be used for solving typical problems from chemical engineering and technology, especially these related with a large projects basing on thermodynamics, mass and heat balances. The topics refer to traditional methods of heat exchangers calculations, thermodynamic analysis of complex reaction models, differences in mass and heat balances using various types of reactors (isothermic, adiabatic, stoichiometric, Gibbs), operating with recycles, possible methods for components separations (crystallization, filtration, extraction, distillation), estimation of basic physicochemical properties of components mixtures, simulating with components not included in the original database, dynamic simulations with variation of one or more parameters (temperature, component composition, pressure), optimization of complex systems in order to obtain expected productivity.

Education effects:

- knowledge: student knows the basic possibilities of advanced simulators used in the chemical engineering and technology, recognize the basic principles governing the projects proposals, including safety restrictions, environmental consequences and principle of technologic moderation

- skills: student can project a complex apparatus system in order to obtain specified a product of desired purity and yield

- social: student understand the need of technologic moderation during projecting and planning of chemical plants modernization / construction.

Literature: CHEMCAD Version 6 User Guide (or newer version 7).

Assessment method: Attendance and fnal test - simulation of selected processes and solving problems using ChemCAD software.

Prerequisites: Basic knowledge in inorganic and organic chemistry and technology

Primary target group: All specialties students

Lecturer: dr hab. inż. E.Skrzyńska

Contact person: dr hab. inż. E.Skrzyńska e-mail: eskrzynska@pk.edu.pl