Course title: **Elements of computational methods in chemical engineering**

Institute/Division: **FACULTY OF CHEMICAL ENGINEERING AND TECHNOLOGY**

Number of contact hours: **30 hours** (15 h lectures and 15 h computer laboratories)
Course duration: 1 semester (6th semester of regular I cycle studies - spring)
ETCS credits: **2**

Course description: The acquisition of the following skills: proper selection of computational tools, implementation of simple programs for solving typical computational problems in process engineering, chemistry and technology, utilization of packaged applications. After course student knows basic numerical methods used in engineering calculations, can use mathematical knowledge to solve practical problems from the fields of chemical engineering, chemistry and technique, can choose computational tool that is adequate to the problem to be solved, and can use ready-to-use programs to solve numerical problems. Lectures and laboratories content: General information on computational methods in chemical engineering/Systems of algebraic linear equations/Interpolation: Lagrange, Newton and spline methods/ Monte Carlo methods / Graphic interpretation of results .

Education effects :
- knowledge: Student knows basic numerical methods used in engineering calculations
- skills: Student can use mathematical knowledge to solve practical problems from the field of chemical engineering, chemistry and technique; student can choose a calculation tool that is adequate to the problem to be solved
- social: student is able to work independently and in the group

Literature:
[1] Sauer T. — Numerical analysis, Boston, 2006, Pearson Education
[2] Finlayson Bruce A. — Introduction to chemical engineering computing, New Yersey, 2012, John Wiley & Sons
[3] Pakowski Z., Głębowski M. — Symulacja procesów inżynierii chemicznej, Łódź, 2001, Wydawnictwo Politechniki Łódzkiej

Assessment method: final test
Prerequisites: Basic knowledge of heat and mass transfer processes
Primary target group: Students from all specialties

Lecturer: **dr inż. Barbara Larwa**
Contact person: bl@chemia.pk.edu.pl, (12) 628 2739

Remarks: Regular course