

Course title: Sustainable trends in biotechnological wastewater treatment

Institute/Division: FACULTY OF CHEMICAL ENGINEERING AND TECHNOLOGY

Erasmus subject code:

Number of contact hours: 15 hours (one block per 15h - seminar)

Course duration: 1 semester (winter)

ETCS credits: 1

Course description: **Lectures content:** Wastewater treatment plant as a biorafinery./ Background of biological treatment/ Conventional and advanced biological wastewater treatment- advantages and disadvantages/ Examples of technological processes: SBR, UTC, bardenpho, bidenipho, bidenitro, biobed, biopaq etc./ Sustainable solutions for industrial wastewater treatment with energy recovery/ Sludge parameters and characteristic/ technologies of sewage sludge treatment: dewatering, thickening, thermal hydrolysis, stabilization (aerobic, anaerobic), sanitation, drying, incineration, utilization/ New and implemented technologies for cellulose, nutrients and biopolymers recovery from wastewater or sewage sludge/ virtual tour of the WWTP/

After the course student are aware of problems with waste and environment pollutions caused by sewage, knows technological operations used in treatments plants; can characterize technologies used for wastewater and sewage sludge treatment; knows sustainable solutions for minimization of WWTP environmental impact.

Literature: [1] Nicholas P Cheremisinoff — Handbook of Water and Wastewater Treatment Technologies

Assessment method: Final test or students projects (depending on group size), presence on lectures

Prerequisites: Basic knowledge on biotechnology and technology

Primary target group: Chemical technology/engineering students

Lecturer: dr hab. inż. K.Gorazda prof PK

Contact person: dr hab. inż. K.Gorazda, e-mail: katarzyna.gorazda@pk.edu.pl

Deadline for application: 15th of January

Remarks: The course runs regularly