Course title: **Organic Chemical Technology**

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

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

Course description:

Overview of the global market of polymers and plastics. Methods of polymerization: addition polymerization, condensation polymerization and modification methods. Addition polymer technologies: poly(ethylene), poly(styrene) and poly(vinylchloride) - chosen technologies, problems and solutions. Condensation polymers: epoxy resins, silicones and polyamides/Eco-friendly and sustainable technologies: poly(urethanes), epoxy resins and natural fillers. Modified natural polymers: modified celulose and chitosan. Recycling of polymers: challenges and solutions (examples)/ Anionic surfactants synthesis and manufacture. Nonionic surfactants- synthesis and manufacture. Cationic surfactants - synthesis and manufacture/ Zwitterionic and amphoteric surfactants - synthesis and manufacture. Colloid systems and interfaces. Renewable raw materials/ Selected oxidation, halogenation, hydration, dehydration and esterification processes /

Education effects :

- knowledge : student knows raw materials, production methods used in chemical technology and innovations. Students knows selected problems and solutions in chemical industry.
- skills: student understands method for production of basic chemical materials; is able to predict the characteristic features of such technologies and its influence on environment
- social: student is able to work independently and in the group when solving the problems related to Chemical technology

Literature:

[1] Martin B. Hocking — Handbook of Chemical Technology and Pollution control (3rd Ed.), 2005,Elsevier;
[2] Wan Wazer Phosphorus and its Compounds — Phosphorus and its Compounds, London, 1958, Interscience publishers;
[3] Salah M. El-Haggar — Sustainable Industrial Design and Waste Management, 2007, Elsevier Ltd

Assessment method: Final tests or topic presentations (average grade from two sub-sections presented at the lectures), presence on lectures.
Prerequisites: Basic course on general, inorganic and organic chemistry.
Primary target group: Students from all specialties

Lecturer: **dr inż. M.Miastkowska**
Contact person: dr inż. M.Miastkowska, e-mail: mjaworska@indy.chemia.pk.edu.pl

Remarks: Regular course