Course name	Industrial Chemistry 2			
Course code	**Course status**	**Semester**	**Hours of instruction**	**ECTS**
1C16HOS1125	required	VI	2+2	5
Teacher(s)	**Prof. Pero Dugić PhD**			

Prerequisite course(s)	**Entry requirements**
Physical Chemistry, Organic Chemistry	**Attended**

Course goals

To enable the student to describe selected processes of the organic chemical industry, understand and explain their purpose and significance, as well as the quality of raw materials and products, process conditions, catalysts and chemical reactions. Also, the student is trained to know the role of basic process devices and equipment, as well as the specifics of certain industrial processes from the aspect of environmental protection.

Learning outcomes

The student can describe selected chemical industry processes and understand their role, product application and quality requirements. The student defines the basic process parameters and material balance. The student knows the basic physical and chemical characteristics of raw materials and finished products, as well as test methods. The student knows the impact of the process on the environment and the application of safety and fire protection steps.

Course content

Chemical processes of oil refining (chemical composition, physical processes of hydrocarbon separation, catalytic processes for the production of fuels and raw materials for the petrochemical industry, chemical composition of fuel additives); Petrochemical processes and products (pyrolysis of hydrocarbons, axial petrochemical products: ethylene, propylene, aromatic hydrocarbons, synthetic gas); Chemistry of synthetic polymers (general about polymers, polymerization reactions, selected polymers: polyethylene, polypropylene, polyvinyl chloride, polyethylene terephthalate); Chemistry of surfactants - PAM (general about PAM, types of PAM, industrial processes of obtaining selected PAM, application, ecological aspects of application, biodegradability);. Chemistry of paints and varnishes (organic synthetic binders, natural oils, pigments, solvents, additives); Chemistry of lubricants (mineral oils, vegetable oils, synthetic base oils, additives for lubricants - chemical composition and mechanism of action); Development directions of the organic chemical industry (raw materials of renewable origin, synthesis of hydrocarbons from biomass, recycling processes and environmental protection)

Teaching methods

Lectures, computational and laboratory exercises, seminar paper with presentation, visits to industrial plants and testing laboratories

Books and other learning materials

1. P.Dugić, T.Botić, Z.Petrović, Tehnologija prerade nafte, Univerzitet u Banjoj Luci, Tehnološki fakultet, Banja Luka, 2017.
2. Z. Petrović, P.Dugić, V.Aleksić: Fizičko-hemijska ispitivanja u procesima organske industrije, Univerzitet u Istočnom Sarajevu, Tehnološki fakultet, Zvornik, 2011.
3. V.Aleksić, P.Dugić, D.Lukić, Odabrani procesi hemijskih tehnologija, Univerzitet u Istočnom Sarajevu, Tehnološki fakultet, Zvornik 2019.

Course activities and grading method

Demonstrations in the laboratory, colloquium from laboratory exercises, 2 tests (or integral test), seminar paper and presentation, oral exam. The activity refers to laboratory exercises which are a condition for taking the final exam. The results of these examinations are included in the final grade only if they exceed 50% of the points provided for a given form of examination during the semester.

Activity	**10**	**Tests**	**10+10**
Seminar paper	**10**	**Final exam**	**60**

Additional course notes

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Name of the teacher who prepared this form	Pero Dugić