



УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ
UNIVERSITY OF BANJA LUKA
ПРИРОДНО-МАТЕМАТИЧКИ ФАКУЛТЕТ
FACULTY OF NATURAL SCIENCES AND MATHEMATICS



CHEMISTRY DEPARTMENT

SECOND CYCLE Master in Chemistry

Course name	Alternative Fuels and Lubricants			
Course code	Course status	Semester	Hours of instruction	ECTS
2C16HEM035	elective	I	2+2	5
Teacher(s)	Prof. Pero Dugić, PhD			

Prerequisite course(s)	Entry requirements
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Course goals

Acquiring knowledge about the sources, quality, consumption and future needs of fuels and lubricants for vehicles and industry. Knowledge of sources, technology of obtaining and application of possible substitutes for fossil fuels and lubricants, as well as their advantages and disadvantages.

Learning outcomes

The student can assess the qualitative and quantitative needs for fuels and lubricants in different areas of application and select appropriate alternatives. The student masters the principles of mass and energy balancing in the field of production and application of fossil and alternative fuels. The student overcome the methods of testing raw materials and finished products in the field of conventional and alternative fuels and lubricants.

Course content

1. Fuel and lubricant needs analysis for vehicles and industry.
2. Analysis of factors influencing the development of fuels and lubricants.
3. Fuels from renewable sources (biodiesel, biogas, alcohols, ethers, biomass, ..).
4. Synthetic fuels and lubricants. CO₂ balance.
5. Fuel and lubricant development directions

Teaching methods

Lectures, preparation of a seminar paper with a presentation, laboratory exercises with colloquia, visits to laboratories.

Books and other learning materials

1. Amit Sarin, Biodiesel-Production and Properties, RSC Publishing, The Royal Society of Chemistry, Cambridge, UK. 2012
2. V.Mičić, Z.Petrović, P.Dugić, Biomass and biogas as an alternative fuel, Faculty of Technology Zvornik, 2015. (on serbian)
3. P. Dugić, Internal script, Faculty of Science, Banja Luka, 2020/2021. (on serbian)

Course activities and grading method

Colloquiums from laboratory exercises, seminar paper and presentation, oral exam. The results of knowledge tests are included in the final grade only if they exceed 50% of the points provided for a given form of examination during the semester.

Seminary work	20	Final exam	60
Laboratory exercises	20		

Additional course notes

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Name of the teacher who prepared this form	Pero Dugić
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