Course name	Fuels			
Course code	**Course status**	**Semester**	**Hours of instruction**	**ECTS**
DHEM23GOR	**elective**	**I, II, III or IV**	**5+0**	**10**
Teacher(s)	**Prof. Branimir Jovančićević, PhD**			

Prerequisite course(s)	**Entry requirements**
none	**/**

Course goals

Acquisition of advanced knowledge of chemistry and technology of traditional fuels, their operation, and application processing, as well as the technology of preparing and processing artificial fuel. Upgrading knowledge about renewable energy sources and getting to know in more detail the impact of technological processes that different energy sources are exposed to on environmental chemistry.

Learning outcomes

Acquired knowledge about the chemistry and technology of different energy sources, as well as the possibility of independently recognizing and solving problems, as well as performing chemical analysis of environmental samples related to the steps of exploitation, processing, and application of fuels.

Course content

Genesis of fossil fuels; Exploitation and reserves of fossil fuels. Coal refining and processing. Technology of crude oil refining processes. Fuels in the gaseous state. Alternative fuels. Biofuels. Hydrogen. Solar energy. Wind, wave energy, and tidal energy. Nuclear energy. Influence of fuel processing and application on environmental chemistry - analytical methods of analysis. Kyoto Protocol. Distribution and sources of polycyclic aromatic hydrocarbons in sediments from different deposition media.

Teaching methods

Lectures.

Books and other learning materials

- D. Vitorović, B. Jovančićević: Fundamentals in Organic Geochemistry, University of Belgrade - Faculty of Chemistry, Belgrade, 2016. ISBN 978-86-7220-082-9
- Ullmann's Encyclopedia of Industrial Chemistry, John Wiley & Sons, Inc. (selected chapters)
- Selected ISO standards for analyzing the quality and critical characteristics of fuels and selected EPA standards for determining air, water, and soil pollution.
- Pandey (editor): Hand Book of plant-based biofuels, Taylor & Francis Group, 2008. ISBN 978-1-56022-175-3 (selected chapters)
- Source characterization of polycyclic aromatic hydrocarbons (PAHs) - course material.

Course activities and grading method

Study research work. Oral exam.

Class attendance	**10**		
Study research work	**30**	**Final exam**	**60**

Additional course notes

Name of the teacher who prepared this form	**Branimir Jovančićević**