Course ID: HOA481	**Course name: CHEMICAL CONCEPTS MOLECULES AND REACTIVITY**		
Cycle: FIRST	**Year: FOURTH**	**Semester: VII**	**ECTS credits: 3**
Course status: MANDATORY		**Total course hours: 30** Lectures: 30	
Teaching participants:	**Teachers and associates with expertise in the field to which the subject belongs**		
Prerequisite for enrollment:	-		
Course aims:	Acquiring the necessary knowledge to understand the facts about molecules, their structure, molecular theories, energy of chemical reactions and the basics of molecular modeling, and understanding the basic chemical concepts, theories and laws.		
Thematic course units:	1. Geometry of molecules. Electronic and molecular geometry. 2. Molecular theories 3. VSEPR theory. 4. Valence bond theory. 5. Hybridization of atomic orbitals. 6. Molecular orbital theory. 7. Molecular-orbital diagrams. 8. HOMO and LUMO orbitals 9. Homonuclear and heteronuclear diatomic molecules 10. Energy of chemical reactions 11. Molecular theories and reaction energy 12. Structure and reactivity 13. Molecular modeling 14. Modeling and visual representation of molecules and processes 15. Examples of chemical principles outside the laboratory		
Learning outcomes:	*Knowledge*: 1. To explain the basic assumptions of molecular theories 2. To explain energy changes in chemical reactions 3. Define the basic principles of molecular modeling *Skills*: 1. To present knowledge about the structure of atoms, molecules and crystals based on atomic molecular orbials and molecular geometry. 2. To argue the connection between molecular theories and basic chemical concepts *Competencies*: 1. Independently describe and analyze different molecules and successfully model them in an appropriate computer program.		
Teaching methodology:	Oral presentation method, conversation method, computer simulations		

Assessment methods and grading system[1]:

Grading criteria		
Criteria	Maximal score	Required score
1. Class attendance	5	3
2. Seminar paper	15	8
3. Test	40	22
4. Final exam	40	22
Total	100	55

Scores and grading		
Score	Grade (B&H)	Grade (ECTS)
< 55	5	F, FX
55–64	6	E
65–74	7	D
75–84	8	C
85–94	9	B
95–100	10	A

Literature[2]:

Mandatory literature:

1. Filipović S, Lipanović I. Opća i anorganska kemija. Zagreb: Školska knjiga; 1995.
2. Zlatović M, PetrovićD. Osnovi molekulskog modelovanja. Beograd: Hemijski fakultet; 2016.

Supplementary literature:

1. Moore E, editor. Molecular modeling and bonding. RSC; 2006.

[1] The grading structure for each subject is determined by the Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

[2] The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton