

Study Program: Physics			
Type and level of studies: Bachelor studies			
Course name: Chemistry			
Lecturer: Dragan A. Zlatanović			
Status: Compulsory			
ECTS: 5			
Attendance prerequisites: none			
Course aims			
Acquiring general knowledge of chemistry.			
Course outcome			
Grasping the basic concepts of chemistry, chemical changes and chemical equilibrium.			
Course content			
<i>Theoretical part</i>			
Matter and its manifestations: General concepts and division. Atoms (structure of atoms, atomic orbitals, elements and periodic table of elements. Molecules (basic concepts, chemical bond, molecule geometry, complex molecules). Intermolecular effects not affecting the substance quality (types of intermolecular effects, physical states, disperse systems).			
2. Chemical changes: Chemical reactions (general terms, division of chemical reactions). Thermodynamics of chemical changes (basic concepts, thermal effect of chemical changes, spontaneity of chemical reaction). Kinetics of chemical changes (basic concepts, kinetics of chemical changes in homogeneous systems, kinetics of change in heterogeneous systems). Chemical equilibrium (basic concepts, electrolyte solutions and their chemical equilibrium, hydrolysis, redox equilibria).			
<i>Practical classes: Exercises, Other forms of teaching, Study research work</i>			
1. Calculations in chemistry (formulae, chemical equations, molecular mass, concentration and molar fraction. 2. General rules of work in the chemical laboratory (work with flammable, chemically aggressive, highly toxic and explosive substances). 3. Laboratory tools and equipment and other accessories, heat sources-bunsen burner, devices, centrifuges, vacuum pumps, dryers, electric ovens). 4. Basics of laboratory techniques (techniques of mixing and separating substances). 5. Practical demonstration (determination of the molarity of the solution, determination of the pH of a solution by colorimetry and electrometry, preparation of salts through neutralization, precipitation of sparingly soluble compounds, detection of cations and anions in solutions).			
Literature			
1. Станимир Р.Арсенијевић, ХЕМИЈА-ОПШТА И НЕОРГАНСКА, Партенон, Београд, 2001, (ИСБН 86-7157-193-9			
2. Иван Филиповић, Стјепан Липановић, ОПЋА И АНОРГАНСКА ХЕМИЈА, Школска књига, Загреб, 1982			
3. С.А.Баљезин, Г.С.Разумовски, С.И.Филјко, Практикум неорганске хемије, Научна књига, Београд, 1970			
4. Јовановић, С., Јовановић, М., Квалитативна хемијска анализа, 1975			
5. Момир С.Јовановић, Електроаналитичка хемија, Завод за издавање уџбеника, Београд, 1967			
Number of active classes			Other classes
Lectures: 2	Practical classes:	Other forms of teaching: 2	
Teaching methods			
Lectures, laboratory exercises.			
Assessment (maximum 100 points)			
Course assignments	points	Final exam	points
activity during lectures	10	written exam	
practical classes	20	oral exam	50
term test(s)	20	
seminar(s)	50		