

Course title: General chemistry

Basic data of the subject			
Academic Unit:	Faculty of Civil Engineering		
Course title:	General Chemistry		
Level:	Bsc		
Course status:	Obligatory		
Study year/Semester:	1 st year, 1 st semester		
Number of hours per week:	2 + 2		
Credit value – ECTS:	6		
Time / location:	Thursday		
Lecturer:	Prof. Dr. Ismet Hashani		
Contact details:	Tel: 044964670		
Course description	This course deals with the concepts of physical and chemical properties of matter, the electronic structure of the atom and the general principles of electronic configuration, chemical reactions, the laws of gases, the properties of solutions, elements and compounds. Thermodynamics and chemical kinetics. Oxidation-reduction reactions and electrochemistry.		
Course objectives:	This module aims to train students in basic knowledge of chemistry: basic laws and chemical calculations. Basic knowledge of atom and molecule structure, properties of solutions and classification of electrolytes. Knowledge of chemical kinetics and thermodynamics, oxidation-reduction reactions and their application in electrochemistry, etc.		
Learning outcomes:	<p>Upon completion of the course the student will be able to:</p> <ul style="list-style-type: none"> • distinguish pure substances from mixtures and methods of their separation; • know the components of the atom and the periodic changes in the properties of chemical elements; • know how to classify chemical bonds; • know how to prepare solutions with different concentrations, to calculate and measure the pH of different electrolytes; • distinguish endothermic reactions from exothermic ones and track the rate of chemical reactions; • equate oxidation-reduction reactions and their application to electrochemistry 		
Contribution on student load (must correspond with learning outcomes)			
Activity	Hours	week	Total /hours
Lectures	2	15	30
Exercise theoretical/laboratory	2	15	30
Contact with lecturer/consultations	1	15	15
Field exercises	0	0	0
Mid-terms, seminars	2	2	4
Homework	1	15	15

Individual time spent studying (at the library or home)	3	15	45
Final preparation for the exam	1	5	5
Time spent in evaluation (tests, quiz, final exam)	1	2	2
Projects, presentations, etc.	2	2	4
Total	150		
Teaching methods	Teaching methodology is based on: lectures, exercises, seminars and debates, consultations, independent tasks, homework, colloquiums, exams.		
Evaluation methods	First midterm evaluation: 25% Second midterm evaluation: 25% Homework and seminars: 10% Regular attendance: 5% Final exam: 35% Total 100%		
Literature:			
Basic Literature:	<ul style="list-style-type: none"> - Azem Lajci , Vuksan Kalaj: KIMIA, për studentët e Mjekësisë, stomatologjisë dhe Biologjisë; Universiteti i Prishtinës, Prishtinë 1998. - M. S. Silberberg: Chemistry, 2. ed., McGraw- Hill, NewYork, 2000. 		
Additional Literature	<ul style="list-style-type: none"> - Bedri A. Kamberi; Bazat teorike se kimisë së përgjithshme dhe inorganike. Universiteti i Prishtinës, Prishtinë 1997 - R. Chang: Chemistry, 6. ed., McGraw-Hill, NewYork, 2000. 		
Designed study plan - Lecture:			
Week	Lectures which will be held		
First week:	Structure of matter and atom construction		
Second week:	Chemical elements and compounds		
Third week:	Mass and energy, their relation to chemical reactions		
Fourth week:	Periodic law and electronic structure of the atom		
Fifth week:	Basics of chemical calculations-stoichiometry.		
Sixth week:	Chemical bonds and crystal structure		
Seventh week:	Real and ideal gases		
Eighth week:	Water and aqueous solutions		
Ninth week:	Theory of solutions, diffusion, osmosis, dialysis, membrane equilibrium		
Tenth week:	Thermochemistry-Enthalpy, Entropy and free energy of chemical reaction.		
Eleventh week:	Kinetics and chemical equilibrium		
Twelfth week:	Solutions and their properties, concentration of solutions.		
Thirteenth week:	Equilibria in electrolyte solutions. Acids and bases, neutralization, buffer solutions, hydrolysis of salts		

Fourteenth week:	Oxidation-reduction reactions and Electrochemistry
Fifteenth week:	General knowledge of the main groups of chemical elements
Week Exercises	
First week:	Laboratory, main tools and their use, development rules and protective measures in the chemistry laboratory.
Second week:	Main actions of laboratory work
Third week:	Separation methods in the chemistry laboratory: Filtration, Decantation, Centrifugation, Distillation, Extraction, Sublimation, and Crystallization.
Fourth week:	International System of Units of Measurement-SI
Fifth week:	Basic laws of chemistry
Sixth week:	Chemical symbols and formulas, Valence, Percentage composition of compounds, chemical equivalent.
Seventh week:	Relative atomic and molecular masses
Eighth week:	Oxidation and Reduction Reactions
Ninth week:	Gaseous state of matter, properties and laws of gases.
Tenth week:	Classification of inorganic compounds
Eleventh week:	Solutions
Twelfth week:	Electrolytes: Electrolyte dissociation, ionic product of water, pH values and Indicators.
Thirteenth week:	Buffer solutions, hydrolysis of salts and solubility products.
Fourteenth week:	Thermochemistry and chemical kinetics.
Fifteenth week:	Electrolysis of some salts and Faraday laws.
Academic policies and rules of etiquette:	
<p>We start and finish class on time.</p> <p>Tools used during class must be cleaned and stored away at the end of class.</p> <p>Mobile/smart phones, and other electronic devices (e.g. iPods) must be turned off (or on vibrate) and hidden from view during class time.</p> <p>Laptop and tablet computers are allowed for quiet use only; other activities such as checking personal e-mail or browsing the Internet are prohibited.</p>	