

Course description

Course abbreviation:	KCH/SZOAC	Page:	1 / 2
Course name:	General and inorganic chemistry		
Academic Year:	2016/2017	Printed:	25.09.2017 22:36

Department/Unit /	KCH / SZOAC			Academic Year	2016/2017
Title	General and inorganic chemistry			Type of completion	State Final Exam
Accredited/Credits	Yes, 0 Cred.			Type of completion	
Number of hours					
Occ/max	Status A	Status B	Status C	Course credit prior to	NO
Summer semester	7 / -	0 / 0	0 / 0	Counted into average	YES
Winter semester	0 / -	0 / 0	0 / 0	Min. (B+C) students	not determined
Timetable	Yes			Repeated registration	NO
Language of instruction	Czech			Semester taught	Winter, Summer
Substituted course	None				
Preclusive courses	N/A				
Prerequisite	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

Aims

Fields: General and inorganic chemistry.

1. Atomic nucleus - composition, stability. Natural and artificial radioactivity. Nuclear reactions.
2. The electron shell constitution. Atomic orbital. Electron configuration of atoms and ions.
3. Covalent bond - formation, polarity, directional properties. Theory of covalent bonds and molecular orbitals.
4. Coordinate-covalence (dative) bond - basic concepts, elucidation from the point of view of the covalent bonds theory and the ligand field.
5. Ionic bonds. The ionic compounds properties. Metallic bond. Weak bond interactions.
6. Mixtures. Solutions - formation, properties. Formulation of the solutions concentrations. Solubility.
7. Redox processes. Electrochemical potential, electrochemical series.
8. Electrolytes, electrolytic dissociation. Electrolysis. Galvanic cells. 9. Theory of acids and bases. Acidobasic equilibria. Hydrolysis.
10. The chemical kinetics bases. Factors influencing the reaction rate.
11. Periodic law and periodic elements system. Periodicity of the elements and compounds properties.
12. Hydrogen, oxygen, inert gases.
13. Alkali metals - properties, the most important compounds.
14. Alkali earth metals - properties, the most important compounds.
15. Halogens - properties, the most important compounds.
16. The III. main subgroup elements - properties, the most important compounds.
17. The IV. main subgroup elements - properties, the most important compounds.
18. The V. main subgroup elements - properties, the most important compounds.
19. The VI. main subgroup elements - properties, the most important compounds of sulphur.
20. d-elements, their characteristic properties, the most important compounds. Complexes.

Requirements on student

Evaluation of the subject as well as the exam grading is made according to the articles No 31 - 33 in the Regulations on Study and Examinations University of Ostrava

Content

General and inorganic chemistry

Prerequisites - other information about course preconditions

The student must gain at least 180 credits during the study in the subjects stipulated by the curriculum of the degree specialization.

Competences acquired

Competences

The students orientate in the general and inorganic chemistry problems. They can use and integrate acquired knowledge in the chemical practice.

Studijní opory**Guarantors and lecturers**

- **Guarantors:** doc. RNDr. Václav Slovák, Ph.D.

Literature**Time requirements**

Activities	Time requirements for activity [h]
Self-tutoring	15
Preparation for an exam	95
Consultation of work with the teacher/tutor (incl. electronic)	10
Total:	120

assessment methods**professional knowledge**

Oral examination

prerequisite**professional knowledge**

The student must gain at least 180 credits during the study in the subjects stipulated by the curriculum of the degree specialization.

learning outcomes**professional knowledge**

Competences

The students orientate in the general and inorganic chemistry problems. They can use and integrate acquired knowledge in the chemical practice.

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Chemistry	Bachelor	Full-time	Chemistry	1	2012	2016	Povinné předměty	A	3	LS