Faculty of Metalurgy and Technology / CHEMICAL TECHNOLOGY / BIOINORGANIC CHEMISTRY

Course:	BIOINORGANIC CHEMISTRY			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
12285	Mandatory	2	6	2+1+1
Programs	CHEMICAL TECHNOLOGY			
Prerequisites	There are no requirements for registering and hearing the case			
Aims	Master the basics of bioinorganic chemistry; enable students to connect previous knowledge from higher chemistry courses with new ones; apply knowledge from bioinorganic chemistry in practice (in environmental protection, catalysis, dietetics, medicine and pharmacy), establish an appropriate relationship with inorganic substances that have a certain biological and pharmacological significance.			
Learning outcomes	After passing the exam, the student will be able to: - Knows biometals and bioligands - Describes the distribution of bioelements in nature and the living world and their importance - Knows metalloenzymes that catalyze hydrolytic and redox processes - Knows oxygen carriers - Describes the transport and storage of iron and oxygen in humans - Recognizes the application of knowledge from this field in medicine, pharmacy and environmental protection			
Lecturer / Teaching assistant	Prof. dr Zorica Leka			
Methodology	Lectures, experimental exercises, seminar papers (writing and defense), finding recent literature			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction to bioinorganic chemistry			
I week exercises	Calcium as a building block			
II week lectures	Biometali i bioligandi			
II week exercises	Mineral composition of ash			
III week lectures	Biocomplexes			
III week exercises	”Bleeding iron” - analogue of iron present in haemoglobin			
IV week lectures	Metalloenzymes that catalyse hydrolytic processes			
IV week exercises	Identification of the presence of copper in foods treated with copper-based preservatives			
V week lectures	Metalloenzymes that catalyze redox processes			
V week exercises	Determination of chlorophyll in the sample			
VI week lectures	Metallopolynucleotides			
VI week exercises	Determination of ferric ions in the sample			
VII week lectures	1st colloquium			
VII week exercises	Presentation of reports with results from previous exercises			
VIII week lectures	Remedial 1st colloquium			
VIII week exercises	Determination of antioxidant capacity by the CUPRIC method I			
IX week lectures	Model systems in bioinorganic chemistry. Ionophores			
IX week exercises	Determination of antioxidant capacity by CUPRIC method II			
X week lectures	Transport of metals and their storage			
X week exercises	Presentation of the report with the results from the previous exercise			
XI week lectures	Modern methods for studying biocomplexes			
XI week exercises	Defense of seminar papers			
XII week lectures	2nd colloquium			
XII week exercises	Defense of seminar papers			
XIII week lectures	Remedial 2nd colloquium			
XIII week exercises	Defense of seminar papers			

XIV week lectures	Trace metals in biological systems
XIV week exercises	Defense of seminar papers
XV week lectures	Applied aspects of bioinorganic chemistry
XV week exercises	Defense of seminar papers/ visits to relevant institutions and lectures by scientists from the given field
Student workload	Weekly: 6 credits x 40/30 = 8 hours Total workload during the semester: 6x30 = 180 hours

Per week	**Per semester**
6 credits x 40/30=8 hours and 0 minuts 2 sat(a) theoretical classes 1 sat(a) practical classes 1 excercises **4 hour(s) i 0 minuts** of independent work, including consultations	Classes and final exam: **8 hour(s) i 0 minuts x 16 =128 hour(s) i 0 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **8 hour(s) i 0 minuts x 2 =16 hour(s) i 0 minuts** Total workload for the subject: **6 x 30=180 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **36 hour(s) i 0 minuts** Workload structure: **128 hour(s) i 0 minuts (cources), 16 hour(s) i 0 minuts (preparation), 36 hour(s) i 0 minuts (additional work)**
Student obligations	Students are obliged to do all the laboratory exercises provided for in the plan, to do and defend a seminar paper
Consultations	Prof. Dr. Zorica Leka - Wednesday from 10 am to 12 pm
Literature	1. K.B.Jacimirskij, Uvod u Bioneorgansku hemiju;Privredni pregled, Beograd 1980 (prevod sa ruskog jezika); 2. S. J. Lipard, J.M.Berg, Principies of Bioinorganic Chemistry, University Science Books, California, 1994 3. S Trifunovic, Bioneorganska hemija, recenzirana skripta, PMF Kragujevac, 1998. 4. Rosette M. Roat- Malone, Bioinorganic chemistry, Wiley-Interscience, 2002.
Examination methods	Activities during lectures and exercises and submitted reports: 5 points - Seminar paper(s): 15 points - 1st colloquium: 15 points - 2nd colloquium: 15 points - Final exam 50 points The exam was passed with 50 points
Special remarks	
Comment	Laboratory exercises are performed in groups with a maximum of 12 students.

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points