	UNIVERSITY OF EAST SARAJEVO Faculty of Technology Zvornik	
	Study programme: *Chemical Engineering and Technology*	
	Cycle I / Academic year IV	

Course title	INORGANIC CHEMICAL TECHNOLOGY I
Department	Department for Chemical Technology – Faculty of Technology Zvornik

Course code	**Course status**	**Semester**	**ECTS**
04-1-036-7	Obligatory	VII	7

Teacher	Dragica Lazić, PhD, full professor
Teaching assistant	Dragan Kešelj, PhD, associate professor

Number of hours/ teaching workload (per week)			**Individual student workload (in hours per semester)**			**Student workload coefficient S_o**
Lectures	**Auditory exercises**	**Laboratory exercises**	**Lectures**	**Auditory exercises**	**Laboratory exercises**	**S_o**
3	1	2	60	20	40	1,33
3*15+1*15+2*15=90 hours			(3*15*1.33+1*15*1.33+2+15*1.33)=120 hours			
Total course workload 90 + 120=210 hours per semester						

Learning outcomes	After finishing the course, students will: 1. *be able to demonstrate and utilize knowledge of the fundamentals of technology processes in inorganic chemical technology*; 2. *be professionally trained in the field of technology processes in inorganic chemical technology* 3. *be able to demonstrate and utilize knowledge of material and energy balance of these processes;* 4. *be able to demonstrate and utilize knowledge of the ways in which technology processes are monitored (process parameters, laboratory analyses)*
Prerequisits	*Inorganic chemistry, Physical Chemistry, Technology/Unit Operations*
Teaching methods	Lectures, experimental exercises, industrial visists, consultations (tutoring) mid-term tests (colloquia), seminar paper, tests
Syllabus outline per week	1. Introduction to chemical technology. Development and intensification of technological processes. 2. Raw materials and energy in the chemical industry. The proper choice and rational use of raw materials. Material and energy balances in production processes. New processes and techniques in inorganic chemical technology. 3. FUEL TECHNOLOGY. Heat value of fuels. Chemical composition of fuels. Types of fuel. Processing of natural fuels. 4. Nuclear fuels. 5. AMMONIA. (Ammonia derived from coal Ammonia synthesis. Preparation of the gas used in the synthesis. 6. AMMONIA. (Compression. Theoretical basis of ammonia synthesis. Cyclic ammonia synthesis. Types of reactors. Separation of ammonia from the circulatory gas. Environmental protection. 7. SODIUM CARBONATE AND SODIUM HYDROGENCARBONATE. Properties of calcined water. Natural soda. Different methods in the production of soda. LeBlanc process. Dual process in the production of soda. Producing soda from nepheline. 8. Solvay process of producing soda. The principle and physicochemical basis of the process. Preparation of the saturated solution of common salt (brine) and solution purification. Preparation of lime by burning limestone. Preparation of quicklime by burning limestone. Sodium chloride solution saturated by ammonia. Heat values during the absorption of ammonia. 9. Producing sodium hydrogen carbonate by introducing carbon dioxide. Heat values during carbonation. Filtration and rinsing using sodium hydrogen carbonate. Thermal decomposition of sodium hydrogen carbonate to sodium carbonate. Recovering ammonia by distilling mother liquor with milk of lime. Environmental protection. 10. CAUSTIC SODA. Caustificization as a technique used for the manufacture of caustic soda. Electrochemical processes in the production of sodium hydroxide. Chemical reactions in the electrolysis of the aqueous solution of salt. 11. CAUSTIC SODA. Electrochemical reactors in the production of sodium hydroxide. Efficiency of

	electrochemical reactors. Environmental protection. 12. INORGANIC MORTAR BINDERS. Gypsum. Lime. Magnesium binders. Cements. 13. CLAY-BASED CERAMICS. 14. REFRACTORY MATERIALS. 15. GLASS. The structure and properties of glass. Glass manufacture. Types of glass. Tests are envisaged after the 8th week and the 15th week.

Obligatory reading			
Author	**Title, publisher**	**Year**	**Pages**
Kostić-Gvozdenović Lj., Ninković R.	Neorganska hemijska tehnologija, Univezitet u Beogradu, Tehnološko-metalurški fakultet	1997	1-23;51-240
Lazić, D., Penavin-Škundrić J., Vasiljević, Lj.	Materijalni i energetski bilans neorganskih baza i soli Univerzitet u Istočnom Sarajevu, Tehnološki fakultet Zvornik,	2007	1-208
Ninković R., Knežić, L., Kostić-Gvozdenović Lj.,Blagojević, N., Božović, B., Pavićević, V.	Neorganska hemijska tehnologija praktikum, Univezitet u Beogradu, Tehnološko-metalurški fakultet	1986	1-179

Additional reading			
Author	**Title, publisher**	**Year**	**Pages**
Ninković, R.,Todorović, M., Miladinović, J., Radovanović, D.	Teorijski osnovi neorganske hemijske tehnologije, Univezitet u Beogradu, Tehnološko-metalurški fakultet	2003	1-401
Ivić, S.	Anorganska kemijska tehnologija, Univerzitet u Sarajevu	1968	1-718
Tecilazić-Stevanović, M.	Osnovi tehnologije keramike, Univezitet u Beogradu, TMF Beograd,	1990	1-413

Obligations, assessment methods and grading system	**Type of student evaluation**	**Grade points**	**Percentage**
	Pre-exam obligations		
	Attendance	6	6 %
	Mid-term test I and II (problem solving)	24	24 %
	Mid-term test (laboratory exercises)	10	10 %
	Test (I+II)	30	30 %
	Final examination (oral)	30	30 %
	Total	100	100 %
Web page	www.tfzv.ues.rs.ba		
Date	2023		