

	UNIVERSITY OF EAST SARAJEVO Faculty of Technology Zvornik					
	<i>Study programme: Chemical Engineering and Technology</i>					
	Cycle I	Year IV				
Course title	TECHNOLOGY OF CERAMICS					
Department	Department for Chemical Technology – Faculty of Technology Zvornik					
Course code	Course status	Semester	ECTS			
04-2-045-7	Elective	VII	5			
Teacher	Dr Dragica Lazić, Full Professor					
Teaching assistant	Dr Dragana Kešelj, Associate Professor					
Number of classes/ teaching workload (per week)		Individual student workload (in hours per semester)		Student workload coefficient S₀		
Lectures	Auditory exercises	Laboratory exercises	Lectures	Auditory exercises	Laboratory exercises	S₀
2	0	2	45	0	45	1.5
$2*15 + 0*15 + 2*15 = 60$ hours			$2*15*1,5 + 0*15*1,5 + 2*15*1,5 = 90$ hours			
Total course workload 60 + 90=150 hours per semester						
Learning outcomes	<p>After finishing the course, students will be able to:</p> <ol style="list-style-type: none"> 1. demonstrate theoretical knowledge in construction ceramics technology 2. practically manage the technological process in the production of construction ceramics 3. calculate material and energy balance for drying and baking processes, as well as for the entire technological process 4. demonstrate knowledge of the working conditions in the basic stages of ceramic production 5. demonstrate knowledge about types and standards for construction ceramics. 					
Prerequisites						
Teaching methods	Lectures, auditory and laboratory exercises, mid-term tests (colloquia).					
Syllabus outline per week	<ol style="list-style-type: none"> 1. History and systematization of ceramic products; Clay; Mineralogical composition of clay; 2. Brick clay; Mineralogical composition of brick clay; Chemical composition of the brickyard clay; Granulometric composition and ceramic properties of brick clays; Quality assessment of brick clay; 3. Basic operations and processes in the production of brick products; Exploitation, transport; Clay storage and processing; 4. Molding of raw clay products; Basic molding procedures; Molding devices for raw clay products; 5. Devices for transporting raw and dried products; 6. Drying; Basic stages of the drying process; Natural dryers; Combined dryers; 7. Chamber dryer (principle of operation, capacity calculation), tunnel dryers (principle of operation, capacity calculation); Comparison between chamber and tunnel dryer; 8. Basic principles and methodology for calculating the heat balance of drying; 9. Baking of brick products; Phases and characteristic temperatures during baking; Heat balance for the baking process; 10. Systematization of brick kilns; Circular kilns (basic principles and firing operations in circular oven, heat balance for baking in a circular oven) 11. Tunnel furnaces; Types of tunnel furnaces; Basic elements of the tunnel furnace; Basic operations of the baking process in the tunnel oven; Heat balance for firing in a tunnel kiln; 12. Calculation of the length of the tunnel furnace; Calculation of the number of burners; The relationship between the capacity and dimensions of the furnace; 13. Balance of consumption of basic raw materials, technological fuel and electricity; 14. Testing the quality of finished products; Shape and dimensions; Physical properties; Water absorption; Frost resistance; Mechanical properties; Waterproofing; Lime and soluble content salt; 15. Assortment and standards of brick products. <p>Mid-term tests are taken after the 8th week and the 15th week. Semester verification is required after the 15th week.</p>					

Obligatory reading				
Author	Title, publisher	Year	Pages	
Brzaković, P.	Priručnik za proizvodnju i primenu građevinskih materijala nemetalnog porekla, knjiga 2, Orion Art, Beograd	2000	237-473	
Kostić-gvozdrenović, L.J., Todorović, M., Petrović, R.	Praktikum iz tehnologije keramike, Tehnološko-metaluški fakultet, Beograd	2000	1-176	
Additional reading				
Author	Title, publisher	Year	Pages	
Tecilović-Stevanović, M.	Osnovi tehnologije keramike, Univerzitet u Beogradu, TMF Beograd	1990	1-411	
Obligations, assessment methods and grading system	Type of student evaluation		Points	Percentage
	Pre-exam obligations			
	Attendance		6	6 %
	Laboratory exercises		10	10%
	Mid-term test (colloquium) 1		27	27%
	Mid-term test (colloquium) 2		27	27%
	Final examination			
	Final examination (oral)		30	30 %
Total		100	100 %	
Web page	www;tfzv;ues;rs;ba			
Date	2023			