	UNIVERSITY OF EAST SARAJEVO Faculty of Technology Zvornik	
	Study programme: *Chemical Engineering and Technology*	
	Cycle I / Year II	

Course title	CONSTRUCTION MATERIALS
Department	Department for Physical Chemistry, Electrochemical Engineering and Materials / Department for Chemical Technology – Faculty of Technology Zvornik

Course code	**Course status**	**Semester**	**ECTS**
04-1-016-3	Compulsory	III	4

Teacher	Dr Dragana Kešelj, Associate 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 S_o**
Lectures	**Auditory exercises**	**Laboratory exercises**	**Lectures**	**Auditory exercises**	**Laboratory exercises**	**S_o**
2	1	0	50	25	0	1.67
2*15 + 1*15 + 0*15 = 45 hours			2*15*1,67 + 1*15*1,67 + 0*15*1,67 = 75 hours			
Total course workload 45 + 75 = 120 hours per semester						

Learning outcomes	After finishing the course, students will be able to: 1. demonstrate the knowledge of the types of materials and their physical and chemical characteristics, as well as their behaviour in different environments and fields 2. differentiate the structure of the material 3. suggest which material to apply for a certain environment and medium 4. suggest how to characterize the material 5. propose a method of testing materials.
Prerequisites	
Teaching methods	Lectures, auditory and laboratory exercises, mid-term tests (colloquia).
Syllabus outline per week	1. Introduction; Materials science and materials engineering; 2. Structure of metallic materials; 3. Mechanical properties of metals; 4. Diagrams of states and phase transformations in alloys; 5. Processing metal materials; 6. Application of metal materials; 7. Ceramic materials - classification, structure, properties and processing of ceramics; Examination (Mid-term test I); 8. Application of ceramic materials; 9. Polymer materials - classification, structure, properties and processing of polymers; 10. Application of polymer materials; 11. Composite materials - classification, structure, properties and processing of composites; 12. Application of composite materials; 13. Modern functional materials; 14. Mechanisms of damage, breakage and protection of materials; 15. Principles of optimal selection of engineering materials; Knowledge check (Mid-term test II). Mid-term tests are taken after the 7th week and the 15th week. Semester verification is required after the 15th week.

Obligatory reading

Author	**Title, publisher**	**Year**	**Pages**
Callister, W.D.	Materials Science and Engineering, An Introduction, 5-th edition, John Willey&Sons, New York	2000	1-300

Additional reading

Author	**Title, publisher**	**Year**	**Pages**

Askeland, D.R.	The Science and Engineering of Materials, 3rd edition, Brooks/Cole Publishing Co., Pacific Grove, CA	1994	77-333
Mitchell, B.S.	An Introduction to Materials Engineering and Science for Chemical and Materials Engineers, John Willey&Sons, New York	2004	1-275
Ashby, M. F.	Materials Selection in Mechanical Design, 4th ed., Elsevier Ltd., Oxford,	2011	1-482
Shackelford, J.F.	Introduction to Materials Science for Engineers, 5th edition, Prantice Hall, Inc.,Upper Saddle River, NJ	2005	1-424

	Type of student evaluation	Grade points	Percentage
Obligations, assessment methods and grading system	Pre-exam obligations		
	Attendance	6	6 %
	Auditory exercises	20	20%
	Mid-term test (Colloquium) 1	22	22%
	Mid-term test (Colloquium) 2	22	22%
	Final examination		
	Final examination (oral)	30	30 %
	Total	100	100 %
Web page	www.tfzv.ues.rs.ba		
Date	2023		