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

Course title	FUEL AND COMBUSTION TECHNOLOGY
Department	Department for Chemical Technology – Faculty of Technology Zvornik

Course code	**Course status**	**Semester**	**ECTS**
04-2-040-7	Elective	VII	5

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	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	After finishing the course, students will be able to: 1. demonstrate the knowledge of the types and characteristics of fuel 2. demonstrate knowledge in the area of the combustion process, which includes material and energy balances 3. master the technologies of fuel processing 4. make an adequate selection of fuel for a given technology process based on the acquired knowledge about fuels.
Prerequisites	
Teaching methods	Lectures, auditory and laboratory exercises, mid-term tests (colloquia).
Syllabus outline per week	1. Fuels in industry 2. Solid fuels; Composition of solid fuels; 3. Liquid fuels; 4. Gaseous fuels; Composition and properties of gaseous fuels; Division and types of gaseous fuels; 5. Choice of fuel; 6. Heat value of fuel; Other fuel properties; 7. Calculation of the composition of gaseous fuel; Calculation of dry to wet gas; Calculation of gas composition from mixtures with air; Calculation of the composition of the mixture of gas and air with oxygen content; Calculation of gas density; 8. Processing of natural fuels; Mechanical processing of coal; 9. Chemical processing of solid fuels; Gasification of solid fuels; Molière's nomogram for the process gasification; Modern gasification processes; 10. Carbonization of solid fuels; Dry distillation of wood; Coking and semi-coking of coal; 11. Combustion of fuel; Stoichiometric analysis of reactions taking place in processes; combustion; Stoichiometric calculations of the combustion of gaseous, liquid and solid fuels; 12. Calculation of the air-fuel ratio when the fuel composition is unknown; Calculating air-fuel ratios based on the calorific value of the fuel; Calculating the air-fuel ratio based on the analysis of combustion products; 13. Incomplete combustion; Combustion temperatures; 14. Flammability limits; Ignition limit theory; Auto-ignition temperature; Spread of flames in gases; Normal flame propagation speed; Methods of determining normal speed spread of flames; 15. The impact of burning fuel on the environment. Mid-term tests are taken after the 8th week and the 15th week. Semester verification is required after the 15th week.

Obligatory reading			
Author	**Title, publisher**	**Year**	**Pages**

Volkov-Husović, T., Raić, K.	Goriva i sagorevanje, Savez inženjera metalurgije srbije, Beograda	2008	1-203

Additional reading			
Author	**Title, publisher**	**Year**	**Pages**
Joksimović- Tjapkin, S.	Procesi sagorevanja, Univerzitet u Beogradu, Tehnološko-metalurški fakultet	1987	1-150
Kostić-Gvozdenović LJ., Ninković R.	Neorganska hemijska tehnologija, Univerzitet u Beogradu, Tehnološko-metalurški fakultet	1997	241-385

	Type of student evaluation	**Grade points**	**Percentage**
Obligations, assessment methods and grading system	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		