
		<b>UNIVERSITY OF EAST SARAJEVO</b> Faculty of Technology Zvornik					
		<b>Study programme: Chemical Engineering and Technology</b>					
		Cycle I		Year IV			
<b>Course title</b>		PLASTICS PROCESSING TECHNOLOGY					
<b>Department</b>		Department for Chemical Technologies– Faculty of Technology Zvornik					
<b>Course code</b>			<b>Course status</b>		<b>Semester</b>		<b>ECTS</b>
04-2-062-8			Elective		VIII		4
<b>Teacher</b>		Zoran Petrović, PhD, Assoc. Prof.					
<b>Teaching assistant</b>		Zoran Petrović, PhD, Assoc. Prof.					
<b>Number of hours/ teaching workload (per week)</b>			<b>Individual student workload (in hours per semester)</b>			<b>Student workload coefficient S<sub>0</sub></b>	
<b>Lectures</b>	<b>Auditory exercises</b>	<b>Laboratory exercises</b>	<b>Lectures</b>	<b>Auditory exercises</b>	<b>Laboratory exercises</b>	<b>S<sub>0</sub></b>	
2	0	2	30	0	30	1.00	
2*15+0*15+2*15=60 hours			(2*15*1+0*15*1+2*15*1)=60 hours				
Total course workload 60 + 60 = 60 hours per semester							
<b>Learning outcomes</b>		After finishing the course, students will be able to: 1. demonstrate and utilize theoretical knowledge in the processing technology of synthetic polymer materials (plastics) 2. identify synthetic polymers 3. solve technological problems arising during the processing of polymer materials.					
<b>Prerequisites</b>							
<b>Teaching methods</b>		Lectures, experimental exercises, industrial visits, seminar paper.					
<b>Syllabus per week</b>		<b>outline</b> 1. Technological characteristics of synthetic plastic materials (polymer structure, chemical, molecular and phase states and transitions), supramolecular structure. 2. Additives to polymers (to facilitate processing, to improve product characteristics, anti-aging processing, change properties, change color, stabilization, etc.). 3. Auxiliary operations during processing (granulation and compounding). 4. Processing by calendaring (working principle, calender assembly, cooling of rollers, movement of mass between rollers, adjustment of product thickness, physical changes in materials, main materials). 5. Processing by pressing (principle of operation, assembly of the press, physical changes of materials, errors on blanks, main products). 6. Processing by extrusion. Principle of operation, basic parts of the equipment and their role, technical characteristics of the equipment, technological parameters, main products: films (blown, flat, co-extruded, laminated, oriented, biaxially oriented, laminated), plates, profiles, pipes, hoses, electric cables, fibers and filaments, technological parameters of extrusion, physical changes in materials during extrusion, influence of extrusion conditions on product quality, product defects. 7. Processing by injection molding. Principle of operation, basic parts of the equipment and their role, technical characteristics of the equipment, technological parameters of injection molding, injection molding cycle, physical changes of materials during injection molding, choice of materials, product faults, main products. 8. Production of blown hollow bodies by extrusion. Principle of operation, basic parts of equipment and their role, technical characteristics of equipment, technological parameters of equipment, technological process, physical changes of materials, influence of working conditions on product quality, main products, product defects. 9. Production of composite materials (concept, stages of production, types of other components, practical final products). 10. Processing of semi-finished products from plastic materials. Thermoforming, lamination, gluing, welding (thermoplastic welding), processing using machine tools. 11. Decorative processing of plastic products (printing on plastic products, metallization, embossing, flooring). 12. The most used plastics (technological and use properties of high and low density polyethylene, polypropylene, polystyrene, polyethylene terephthalate). 13. Basic principles of recycling waste generated in the processing of plastics (reuse, recycling,					

	regranulation). 14. Procedures for identification of plastic materials (types of procedures, methods of execution, etc.). 15. Health and environmental aspects related to the processing and use of plastics			
<b>Obligatory reading</b>				
<b>Author</b>	<b>Title, publisher</b>	<b>Year</b>	<b>Pages</b>	
Levi, B.	Tehnologija prerađe plastičnih masa, Tehnička knjiga, Beograd	1965		
Mihajlović, A., Bogdanović, V., Radosavljević, D., Mijuckić, B.	Dodaci polimerima, IHTM – ITR, Beograd	1997		
Rapajić, B.	Prerada plastičnih masa ekstrudiranjem, Privredni pregled, Beograd	1769		
<b>Additional reading</b>				
<b>Author</b>	<b>Title, publisher</b>	<b>Year</b>	<b>Pages</b>	
Jovanović. S., Jeremić, K..	Karakterisanje polimera, Tehnološko – metalurški fakultet Beograd	2007		
Pejak, M.	Poliprepilen, Logos, Bačka Palanka	2005		
Birlez, A.W.B., Haworth, J.	Physics of Plastics – Processing, Properties and Materials Engineering, Hanser, Munich	1991		
<b>Obligations, assessment methods and grading system</b>	<b>Type of student evaluation</b>		<b>Grade points</b>	<b>Percentage</b>
	Pre-exam obligations			
		Attendance	6	6 %
		Mid-term test (colloquium) 1	24	24 %
		Mid-term test (colloquium) 2	20	20 %
		Laboratory exercises	10	10 %
		Seminar paper	10	10 %
	Final examination			
		Final examination (oral)	30	30 %
	Total	100	100 %	
<b>Web page</b>	www.tfzv.ues.rs.ba			
<b>Date</b>	2023			