



Course ID: HOB412		Course name: POLYMER WASTE AND ITS DISPOSAL	
Cycle: FIRST	Year: FOURTH	Semester: VIII	ECTS credits: 3
Course status: MANDATORY		Total course hours: 45 Lectures: 30 Laboratory: 15	
Teaching participants:	Teachers and associates with expertise in the field of polymer waste		
Prerequisite for enrollment:	-		
Course aims:	Introducing students to the concept of polymer, types of polymers and the polymerization process. Acquiring knowledge on environmental pollution by plastic waste, and methods for plastic waste treatment.		
Thematic course units:	Definition of polymer; natural and synthetic polymers. Basic structures of the polymer chain; chain conformation and configuration, polymer morphology, arrangement of solid molecules, polymer cristallinity. Polymerization reactions; dependence of chain structure and molecular weight on polymerization conditions. Environmental pollution with plastic materials, accumulation of toxic chemicals from the process of plastic production in soil and water. Basic terms on recycling of homogeneous and heterogeneous plastics. Recycling of PVC products; recycling of used plastic containers made of polyethylene, polyvinylchloride, polyethylen terephthalate by chemical and mechanical processes. Packaging waste management. New process for recycling mixed plastic waste; mechanical-biological treatment of waste. Biodegradable polymers. Sustainable development and polymer materials. UV stability of recycled polymers.		
Learning outcomes:	<i>Knowledge:</i> The student will get acquainted with the types of polymer waste, ways of recycling, and its disposal. Also, the student will learn basic concepts about production of biodegradable polymers, their stability and use. <i>Skills:</i> The student will be trained to manage polymer waste, suggest appropriate recycling or disposal procedures. <i>Competencies:</i> The student will acquire competencies on the production of biodegradable polymers, different types of recycling of polymer waste, as well as ways to safely dispose of		

