

Table 5.2 Course specification

Type and level of studies: Bachelor Academic Studies, 1 st level			
Course name: Zero Waste Technologies			
Course status: Elective			
Number of ECTS credits: 6			
Requirement: None			
Course aim			
Training students for the comprehensive overview of the technological processes in terms of pollution prevention, waste minimization measures in the technological process of production as well as connecting material and energy flows in cyclical trends, to optimize the use of resources.			
Course outcome			
Students will understand the material and energy flows of production and be able to identify opportunities for improvement in accordance with the principles of waste free technology. They will learn about the reference documents on the best technologies available.			
Course content			
<i>Theory</i>			
Differences between traditional and "wasteless" technological processes. Definition and objectives of waste-free technology. Best available techniques (BAT) and the BREF documents: the production of energy, raw materials processing, metallurgy, mineral oil refineries and natural gas, mineral acids, alkalis, mineral fertilizers, alternative waste disposal, recycling, waste streams purification (flue gases, waste sludge).			
<i>Practice: Practical classes, OFT, SRW</i>			
Seminar paper on the topic of the selected technological process. Visit to facilities where BAT principles and non-waste technologies are applied.			
Literature			
1. S.Maletić, M.Dalmacija ⁺ , B.Dalmacija, M.Bečelić-Tomin, S.Rončević, D.Krčmar, Đ.Kerkez: Sources and control of environmental pollution, PMF, Novi Sad, 2017			
2. B.Dalmacija, S.Rončević, Ž.Vrbaški, D.Krčmar: Chemical technology, PMF, Novi Sad, 2012			
3. Teaching material, PMF Novi Sad, PMF moodle			
4. G. Schwedt: The Essential Guide to Environmental Chemistry, John Wiley and Sons, 2001			
5. L. Spinoso, A. Vesilind: Sludge into Biosolids, Processing, Disposal and Utilization, IWA Publishing, 2001			
Number of classes of active teaching			Other classes
Lectures: 2 (30)	Practice: 3 (45)	OFT: SRW:	
Teaching methods			
Lectures, practice, consultation			
Assessment of knowledge (maximum of 100 points)			
Pre-exam obligations	Points	Final exam	points
activity during lecture classes	5	written exam	20
practical teaching	5	oral exam	10
colloquia (2)	40	/	
seminars	20	/	