Title	**SUSTAINABLE WASTE MANAGEMENT**
Code	
Study Program	Postgraduate Interdisciplinary Doctoral Study of Nature and Environment Protection
Semester	III.
ECTS	5
Status	☐ obligatory ☒ elective
Lecturer	Goran Heffer, Ph.D., Full Professor
Co-Lecturers	Ivan Plaščak, Ph.D., Assistant Professor
Requirements for Enrolment	–
Objectives	Introducing students with the problematics of the formation of different waste types, the importance of proper management of the same, and the key terms, principles and procedures which includes an integrated system of sustainable waste management.
Learning Outcomes	It is expected that the student after completing the course be able to: 1. Describe the term of waste and sources of its formation 2. Identify the types of waste according to the place of origin and its properties 3. Determine the categories of waste to the Waste Catalogue 4. Implement the provisions of the relevant regulations in the field of waste management 5. Adopt the order of precedence (hierarchy) in waste management 6. Define segments integrated system of sustainable waste management 7. Describe the measures and procedures for avoiding and reduction of waste 8. Develop and improve the system of primary waste selection (separate collection) 9. Analyze the possibility of reuse, recycling or recovery of a certain waste 10. Define waste disposal procedures in the prescribed manner 11. Determine key stakeholders in sustainable waste management and their obligations 12. Understand the importance of public participation and education on waste management

Connection between Learning Outcomes, Curricular and Student Activities

Student Activities	ECTS	Learning Outcomes	Curricular Activities	Methods of Assessment	Credits*	
					min	max
Presence at teaching with active participation	0,5	1-12	Lectures / Consultations	Attendance records, evaluation through the conversation	5	10
Writing a seminar paper	2,0	5-10	Consultations	Review and evaluation of presentation	20	40
Preparation for final exam	2,5	1-12	Conduction of exam	Results of the written exam	25	50
Total	**5,0**				**50**	**100**

Final rating:
- **50.1 to 62.5 points:** rating **enough (2)**
- **50.1 to 62.5 points:** rating **good (3)**
- **50.1 to 62.5 points:** rating **very good (4)**
- **50.1 to 62.5 points:** rating **excellent (5)**

Consultations	Once per week during the current semester in which the course is registered, and in addition to the agreement with the students.		
Learning Activities	**Lectures**	**Seminars**	**Practice**
Hours	10	5	-

Contents / Teaching Units	– Introductory terms from the field of waste: The concept of waste, regulations and terminology from the field of waste management; Sources of origin and types of waste; Categorization of waste – Basics of waste management: Principles, objectives and ways of waste management; Order of precedence in waste management; Description of comprehensive (integrated) system of sustainable waste management; Jurisdiction and duties in waste management – Preventing of waste production: Measures and procedures for avoiding and reduction of waste production; Handling waste at source of origin; System of primary waste selection – Recovery of waste: Recycling, other methods of recovery; Disposal of waste in the prescribed way: technological processes of disposal, transboundary movement of waste; Facilities and plants for waste management – Waste management information system: Obligation to keep and report data on waste management, Environmental Pollution Registry (EPR); Financial obligations in the field of waste management; Public participation in waste management; Education about sustainable waste management
Obligatory Literature	- Cheremisinoff, N.P. (2003): Handbook of Solid Waste Management and Waste Minimization Technologies, Elsevier Science (USA), 2003. - Rogoff, M.J. (2014): Solid Waste Recycling and Processing, Second Edition, Elsevier Inc., 2014. - Worrell, W.A.; Vesilind, P.A. (2010): Solid Waste Engineering, Second Edition, Cengage Learning, Stamford, USA
Recommended literature	- Kalambura, S., Krička, T., Kalambura, D. (2011): Waste Management, University of Applied Sciences Velika Gorica, Velika Gorica 2011. (Croatian) - Kemeter, D. (2015): Sustainable Waste Management, The Polytechnic of Međimurje in Čakovec, Čakovec 2015. (Croatian) - Sofilić, T.; Brnardić, I. (2013): Waste Management, University of Zagreb, Faculty of Metallurgy, Sisak 2013. (Croatian) - Croatian regulations in the area of sustainable waste management - Relevant journals from the field of waste management: Waste Management, Waste Management and Research, Journal of Material Cycles and Waste Management, Osterreichische Wasser- und Abfallwirtschaft
Requirements for Aquiring Signature	Attended teaching / conducted consultations
Type of Exam	During teaching / consultations from lectures monitors the work of each student and evaluates the execution of tasks, based on which it is made seminar paper, what together represents 50% of the final grade. The final exam is taken in writing, after making and presentation of the seminar work, and represents other 50% of the final rating.
Lectures Language	Croatian
Quality Monitoring	Through evaluation of teacher's work and quality of the lecture by anonymous student questionnaire.