(Table 5.2) Course unit description

<table>
<tr><td colspan="5">Study program: Chemistry</td></tr>
<tr><td colspan="5">Type and level of studies: MSc</td></tr>
<tr><td colspan="5">Course unit: Hazardous Substances and Hazardous Waste Management</td></tr>
<tr><td colspan="5">Teacher in charge: Marina Cendic Serafinovic</td></tr>
<tr><td colspan="5">Language of instruction: English</td></tr>
<tr><td colspan="5">ECTS: 5</td></tr>
<tr><td colspan="5">Prerequisites: /</td></tr>
<tr><td colspan="5">Semester: summer</td></tr>
<tr><td colspan="5">Course unit objective
To provide students with theoretical and practical knowledge of types of hazardous substances, their properties, the risks associated with their use, and hazardous waste management. The course introduces regulations and standards for the safe handling, transport, storage and disposal of hazardous substances and waste, as well as techniques and strategies for minimising their impact on the environment and human health. Students will develop practical skills in hazard identification and assessment and in implementing protective measures in accordance with current legal and environmental requirements.</td></tr>
<tr><td colspan="5">Learning outcomes of Course unit
Students will be able to identify and classify hazardous substances, understand their properties and associated risks, and apply relevant legal and technical standards in hazardous waste management. They will assess risks, propose appropriate measures to protect the environment and human health, and develop and implement safe and effective methods for storing, transporting and disposing of hazardous waste in accordance with current regulations and environmental guidelines.</td></tr>
<tr><td colspan="5">Course unit contents
Theoretical classes: Development of solid waste management systems: definitions and historical development; functional elements, integrated waste management, waste hierarchy and selection of management approaches. Legal framework: international regulations, EU waste legislation, special waste categories, waste transport, waste management principles and Serbian legislation. Generation and types of solid waste: municipal, special-category, medical, agricultural, animal-origin and hazardous waste; classification, characteristics, generators, collection, storage, transport, recycling, treatment and final disposal of hazardous waste. Municipal waste composition and properties: quantities, morphological composition, physical, chemical and biological properties, energy potential, collection systems, containers, collection frequency, sorting and transport. Recycling: principles, physical and mechanical treatment, sorting, size reduction, and recycling of paper, cardboard, glass, plastics, rubber and metals. Mechanical-biological treatment, thermal treatment and landfilling.
Practical classes: Analysis of national and international hazardous waste legislation; case studies on waste characterisation and categorisation; site visits to industrial facilities, institutes and other relevant organisations.</td></tr>
<tr><td colspan="5">Literature
Required: 1. Dušica Pešević, Waste Management (Upravljanje otpadom), Banja Luka, 2022.
Supplementary: 2. Law on Waste Management of the Republic of Serbia.</td></tr>
<tr><td colspan="4">Number of active teaching hours</td><td rowspan="2"></td></tr>
<tr><td>Lectures:
2</td><td>Practice:
2</td><td>Other forms of classes:</td><td>Independent work:</td></tr>
<tr><td colspan="4"></td><td>Other classes:</td></tr>
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Teaching methods

Modern teaching methods using graphical, audio and video materials in classrooms equipped with projectors and boards. Practical instruction includes visits to organisations to assess existing conditions, analyse hazardous waste management and propose optimal solutions. Seminar papers are based on lectures and practical classes.

Examination methods (maximum 100 points)

Exam prerequisites	No. of points	Final exam	No. of points
Practical classes	10	Written examination	20
Tests	10	Oral examination	30
Homework	10	Other	
Seminars	10		
Project	10		

Grading system

Grade	No. of points	Description
10	>= 91	Excellent
9	81-90	Exceptionally good
8	71-80	Very good
7	61-70	Good
6	51-60	Passing
5	<=50	Failing