Course ID: HAH487	**Course name: REMEDIATION TECHNOLOGIES IN ENVIRONMENT**		
Cycle: FIRST	**Year: FOURTH**	**Semester:VIII**	**ECTS credits: 4**
Course status: MANDATORY		**Total course hours: 60** Lectures: 30 Laboratory: 30	
Teaching participants:	**Teachers and associates with expertise in the field to which the subject belongs** [do not enter names in this section. Leave the wording as indicated in this section]		
Prerequisite for enrollment:	-		
Course aims:	Acquisition of knowledge and laboratory skills in the remediation of polluted spheres of the environment, selection and application of remediation methods to the content of heavy metals		
Thematic course units:	1. Environmental quality 2. Characteristics of pollutants 3. Migration of pollutants through environmental spheres 4. Pollution of environmental spheres,remediation (classification, sources, sampling,assessment) 5. Monitoring 6. Methods of remediation 7. Physical remediation procedures 8. Knowledge test - TEST 9. Chemical remediation procedures 10. Stabilization/solidificatio, hazardous waste 11. Phytoremediation, hyperaccumulators of heavy metals in soil 12. Philoremediation 13. Sediment remediation 14. Water remediation (ex-situ, in-situ) 15. Assessment of remediation efficiency, legislation		
Learning outcomes:	The student will be able to: -state the characteristics of heavy metals as pollutants -explain the transport and migration of pollutants through the spheres of the environment, and the factors influencing the choice of methods/procedures for remediation of the		

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<tr><td></td><td>spheres of the environment
-perform experimental remediation of contaminated sites
-evaluate the effectiveness of the selected remediation process
-analyze and apply legislation in the field of environmental protection</td></tr>
<tr><td>Teaching methodology:</td><td>Lectures (oral presentation of teachers - presentations) and laboratory exercises (practical work)</td></tr>
<tr><td>Assessment methods and grading system[1]:</td><td>
<table>
<tr><td colspan="4">Grading criteria</td></tr>
<tr><td colspan="2">Criteria</td><td>Maximal score</td><td>Required score</td></tr>
<tr><td>1.</td><td>Class attendance</td><td>5</td><td>3</td></tr>
<tr><td>2.</td><td>Class activities *</td><td>15</td><td>8</td></tr>
<tr><td>3.</td><td>Midterms</td><td>40</td><td>22</td></tr>
<tr><td>4.</td><td>Final exam</td><td>40</td><td>22</td></tr>
<tr><td colspan="2">Total</td><td>100</td><td>55</td></tr>
<tr><td colspan="4">* Class activity is sccoredthroughthe engagement of students in exercises.</td></tr>
<tr><td colspan="4">Scores and grading</td></tr>
<tr><td colspan="2">Score</td><td>Grade (B&H)</td><td>Grade (ECTS)</td></tr>
<tr><td colspan="2">< 55</td><td>5</td><td>F, FX</td></tr>
<tr><td colspan="2">55–64</td><td>6</td><td>E</td></tr>
<tr><td colspan="2">65–74</td><td>7</td><td>D</td></tr>
<tr><td colspan="2">75–84</td><td>8</td><td>C</td></tr>
<tr><td colspan="2">85–94</td><td>9</td><td>B</td></tr>
<tr><td colspan="2">95–100</td><td>10</td><td>A</td></tr>
</table>
</td></tr>
<tr><td>Literature[2]:</td><td>Supplementary literature:
1. Morel JL, Echevarria G, Goncharova N, editors. Phytoremediation of Metal-Contaminated Soils. Dordrecht: Springer; 2006.
2. Swartjes FA, editor. Dealing with Contaminated Sites: From Theory towards Practical Application. Dordrecht: Springer; 2011.
3. Krešić N, VujasinovićS,Matić I. Remedijacijapodzemnihvodaigeosredine. Beograd: Rudarsko-geološkifakultet; 2006.
4. Mirsal IA. Soil Pollution: Origin, Monitoring and Remediation. 2nd ed. Berlin, Heidelberg: Springer; 2008.
5. Chandra R, Dubey NK, Kumar V, editors. Phytoremediation of Environmental Pollutants. Boca Raton: CRC Press and Taylor and Francis Group; 2018.</td></tr>
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[1]The grading structure for each subject is determined bythe Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

[2]The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton