



<b>Course ID:</b> HAH361	<b>Course name: CHEMISTRY AND QUALITY OF AIR</b>		
<b>Cycle: FIRST</b>	<b>Year: THIRD</b>	<b>Semester: VI</b>	<b>ECTS credits: 5</b>
<b>Course status: MANDATORY</b>		<b>Total course hours: 60</b> Lectures: 30 Laboratory: 30	
<b>Teaching participants:</b>	<b>Teachers and associates with expertise in the field to which the subject belongs</b>		
<b>Prerequisite for enrollment:</b>	-		
<b>Course aims:</b>	Acquisition of basic knowledge of air chemistry and analytical skills for analysis of pollutants in the air. Students will be introduced to the basic and specific pollutants in the air, their sources and behavior in the atmosphere, as well as analytical methods for determining pollutants in air.		
<b>Thematic course units:</b>	<ol style="list-style-type: none"><li>1. Introduction, general terms</li><li>2. Inorganic pollutants emitted into the atmosphere</li><li>3. Organic pollutants emitted into the atmosphere</li><li>4. Overview of the main sources of pollutants in the air</li><li>5. Chemical processes in the atmosphere</li><li>6. Photochemical processes in the atmosphere</li><li>7. Ozone layer, Ozone layer depletion</li><li>8. Midterm</li><li>9. Air quality monitoring in urban and industrial environments and monitoring methods</li><li>10. Analytical methods and procedures used in air quality control</li><li>11. Types of air particulate matter samplers</li><li>12. Chemical analysis of air particulate matter</li><li>13. Pollutant emission control</li><li>14. Air quality index</li><li>15. Legislation. Interpretation of data in relation to emission limit values</li></ol>		
<b>Learning outcomes:</b>	After completing the course, the student will be able to: - define chemical and photochemical processes in the atmosphere - identify inorganic and organic pollutants emitted in the atmosphere - identify sources of pollutants in the air		

	<ul style="list-style-type: none"> <li>- select and apply techniques and procedures for the sampling of air pollutants</li> <li>- select and apply techniques for determining pollutants in the air</li> <li>- analyze the obtained results</li> <li>- assess the degree of air pollution at the local level</li> </ul>																																																
<b>Teaching methodology:</b>	<p>Lectures Laboratory exercises Field work</p>																																																
<b>Assessment methods and grading system<sup>1</sup>:</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="background-color: #e0e0e0;">Grading criteria</th> </tr> <tr> <th style="width: 60%;">Criteria</th> <th style="width: 20%;">Maximal score</th> <th style="width: 20%;">Required score</th> </tr> </thead> <tbody> <tr> <td>1. Class attendance</td> <td>5</td> <td>3</td> </tr> <tr> <td>2. Class activities*</td> <td>15</td> <td>8</td> </tr> <tr> <td>3. Midterms</td> <td>40</td> <td>22</td> </tr> <tr> <td>4. Final exam</td> <td>40</td> <td>22</td> </tr> <tr> <td style="text-align: center;">Total</td> <td style="text-align: center;">100</td> <td style="text-align: center;">55</td> </tr> <tr> <td colspan="3" style="text-align: center;">* Class activity is scored through the engagement of students in laboratory exercises</td> </tr> <tr> <th colspan="3" style="background-color: #e0e0e0;">Scores and grading</th> </tr> <tr> <th style="width: 40%;">Score</th> <th style="width: 30%;">Grade (BiH)</th> <th style="width: 30%;">Grade (ECTS)</th> </tr> <tr> <td style="text-align: center;">&lt; 55</td> <td style="text-align: center;">5</td> <td style="text-align: center;">F, FX</td> </tr> <tr> <td style="text-align: center;">55–64</td> <td style="text-align: center;">6</td> <td style="text-align: center;">E</td> </tr> <tr> <td style="text-align: center;">65–74</td> <td style="text-align: center;">7</td> <td style="text-align: center;">D</td> </tr> <tr> <td style="text-align: center;">75–84</td> <td style="text-align: center;">8</td> <td style="text-align: center;">C</td> </tr> <tr> <td style="text-align: center;">85–94</td> <td style="text-align: center;">9</td> <td style="text-align: center;">B</td> </tr> <tr> <td style="text-align: center;">95–100</td> <td style="text-align: center;">10</td> <td style="text-align: center;">A</td> </tr> </tbody> </table>	Grading criteria			Criteria	Maximal score	Required score	1. Class attendance	5	3	2. Class activities*	15	8	3. Midterms	40	22	4. Final exam	40	22	Total	100	55	* Class activity is scored through the engagement of students in laboratory exercises			Scores and grading			Score	Grade (BiH)	Grade (ECTS)	< 55	5	F, FX	55–64	6	E	65–74	7	D	75–84	8	C	85–94	9	B	95–100	10	A
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<b>Literature<sup>2</sup>:</b>	<p>Mandatory literature:</p> <ol style="list-style-type: none"> <li>1. J. Đuković, Hemija atmosfere, Rudarski institut Beograd, 2001.</li> <li>2. J. Đuković, V. Bojanić, Aerozagadenje, D.P. Institut zaštite i ekologije, Banja Luka, 2000.</li> <li>3. J. Đuković, Zaštita životne okoline – zaštita vazduha (I izdanje), Svjetlost Sarajevo, 1990.</li> <li>4. D. Tuhtar, Zagađenje zraka i vode, Svjetlost, Sarajevo, 1984.</li> <li>5. D. J. Jacob, Introduction to Atmospheric Chemistry, Princeton University Press, 1999</li> <li>6. J. H. Seinfeld, S. N. Pandis, Atmospheric Chemistry and</li> </ol>																																																

<sup>1</sup> The grading structure for each subject is determined by the 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

<sup>2</sup> 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

Physics: From Air Pollution to Climate Change (second edition), John Wiley & Sons, Inc., Hoboken, New Jersey, 2006

Supplementary literature:

1. R. M. Harrisson (ed.), Pollution: Causes, Effects and Control (third edition), The Royal Society of Chemistry, 1996.
2. M. K. Hill, Understanding Environmental Pollution, Cambridge University Press, 1997.