



<b>Course ID:</b> HOB354	<b>Course name: ORGANIC ANALYSIS</b>		
<b>Cycle: FIRST</b>	<b>Year: THIRD</b>	<b>Semester: V</b>	<b>ECTS credits: 4</b>
<b>Course status: MANDATORY</b>		<b>Total course hours: 75</b> Lectures: 30 Laboratory: 45	
<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>	Acquiring knowledge of analytical methods of qualitative and quantitative analysis of organic molecules and biomolecules		
<b>Thematic course units:</b>	<ol style="list-style-type: none"><li>1. Introduction. Specific conditions for sampling of organic and natural material; Apparatus and procedures for working with small quantities. Determination of physical constants.</li><li>2. Elementary analysis of an organic compound. Qualitative analysis of organic compound; Quantitative analysis of organic and natural compounds.</li><li>3. Preliminary tests of the properties of the organic compound. Classification of organic compounds based on solubility; Identification of acidic and basic groups.</li><li>4. Classification of compounds based on combustion; Detection of aromatic structure in an organic molecule; Determination of organic compounds in the form of salts.</li><li>5. Qualitative and quantitative chemical functional analysis. Dyeing and precipitation reactions; Synthesis and identification of analytical derivatives; Identification through degradation reactions.</li><li>6. Analysis of the organic mixture. Principles of organic mixture analysis; Separation schemes; Determination of individual components of natural and synthetic mixtures.</li><li>7. Methods for separation of natural and synthetic organic mixtures.</li><li>8. Chromatographic methods-Adsorption</li></ol>		

	<p>chromatography, Affinity chromatography; Gas chromatography, High pressure liquid chromatography, Gel filtration, Electrophoretic methods</p> <p>9. Application of spectroscopic methods in structural analysis. Application of UV and fluorescent spectra in organic analysis; IR spectroscopy; Mass spectrometry; Raman spectroscopy; Nuclear magnetic resonance.</p> <p>10. Various aspects of the application of analytics in the analysis of products of the food, pharmaceutical, wood and leather industries.</p> <p>11. Analysis of environmental pollutants. Phenols, aromatic hydrocarbons, pesticides, detergents.</p>																																													
<p><b>Learning outcomes:</b></p>	<p>Knowledge: The student will be able to do appropriate preliminary tests in order to identify the organic compound. Qualitatively and quantitatively analyze the mixture of organic compounds.</p> <p>Apply spectroscopic, chromatographic instrumental methods for organic compound analysis</p> <p>Skills: The student develops the skills needed for qualitative and quantitative analysis of organic components, both through the theoretical basis and through practical work in the laboratory.</p> <p>Competences: The student is able to independently perform the analysis of organic compounds.</p>																																													
<p><b>Teaching methodology:</b></p>	<p>Auditory lectures and laboratory exercises</p>																																													
<p><b>Assessment methods and grading system<sup>1</sup>:</b></p>	<table border="1"> <thead> <tr> <th colspan="3">Grading criteria</th> </tr> <tr> <th>Criteria</th> <th>Maximal score</th> <th>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>10</td> <td>5</td> </tr> <tr> <td>3. Midterms</td> <td>45</td> <td>25</td> </tr> <tr> <td>4. Final exam</td> <td>40</td> <td>22</td> </tr> <tr> <td>Total</td> <td>100</td> <td>55</td> </tr> <tr> <th colspan="3">Scores and grading</th> </tr> <tr> <th>Score</th> <th>Grade (B&amp;H)</th> <th>Grade (ECTS)</th> </tr> <tr> <td>&lt; 55</td> <td>5</td> <td>F, FX</td> </tr> <tr> <td>55-64</td> <td>6</td> <td>E</td> </tr> <tr> <td>65-74</td> <td>7</td> <td>D</td> </tr> <tr> <td>75-84</td> <td>8</td> <td>C</td> </tr> <tr> <td>85-94</td> <td>9</td> <td>B</td> </tr> <tr> <td>95-100</td> <td>10</td> <td>A</td> </tr> </tbody> </table>	Grading criteria			Criteria	Maximal score	Required score	1. Class attendance	5	3	2. Class activities	10	5	3. Midterms	45	25	4. Final exam	40	22	Total	100	55	Scores and grading			Score	Grade (B&H)	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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<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

**Literature<sup>2</sup>:**

**Mandatory literature:**

1. Shriner, R. L., Hermann, C. K. F., Morrill, T. C., Curtin, D. Y., Fuson, R. C. (2004), THE SYSTEMATIC IDENTIFICATION OF ORGANIC COMPOUNDS, 8<sup>th</sup> Ed., John Wiley & Sons, New York
2. Volhardt, K.P.C., Schore, N.E. (2004) ORGANSKA HEMIJA: struktura i funkcija, IV izdanje, Data status, Beograd

**Supplementary literature:**

1. Criddle W. J., G. P. Ellis (1990), SPECTRAL & CHEMICAL CHARACTERIZATION OF ORGANIC COMPOUNDS, John Wiley & Sons, New York
2. Hesse, M., Meier, H., Zeeh, B. (1997) SPECTROSCOPIC METHODS IN ORGANIC CHEMISTRY, Georg Thieme Verlag, Stuttgart, New York.
3. Poole, C.F. (2003) THE ESSENCE OF CHROMATOGRAPHY, Elsevier

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<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