Course ID: HAH473	**Course name: INSTRUMENTAL METHODS OF ANALYSIS**		
Cycle: FIRST	**Year: FOURTH**	**Semester: VIII**	**ECTS credits: 6**
Course status: MANDATORY		**Total course hours: 75** Lectures: 30 Laboratory: 45	
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:	Introducing students to the theoretical principles of electroanalytical and spectroscopic methods of analysis used in qualitative and quantitative analysis, acquiring practical skills to work on instruments encountered in the analytical laboratory, as well as independent solving of tasks in these areas.		
Thematic course units:	1. Importance and Classification of methods; Electrochemical Cells 2. Nernst equation, Equilibrium Constant, Concentration Polarization 3. Voltammetry; Measurement of Diffusion Current; Interferences; Stripping Analysis 4. Amperometric titrations 5. Potentiometry: General; Reference and Indicator Electrodes 6. Sensors for pH; Measurement of pH, Other Ion-selective Electrodes 7. Potentiometric titrations, Conductometric titrations 8. Electrogravimetry and Coulometry 9. Spectrometric methods; Classification, Radiation properties, Absorption, and Emission 10. Absorption spectrum, Lambert-Beer Law: application and limitations 11. Instruments in spectrometry: components of the instrument 12. Molecular atomic spectrometry 13. Application of UV/VIS for Qualitative and Quantitative Analysis		

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<tr><td></td><td>14. Spectrophotometric titrations; Analysis of mixture
15. Atomic absorption spectrometry (AAS), Methods for determination; Interferences; Flameless atomization, Flame emission methods</td></tr>
<tr><td>Learning outcomes:</td><td>Knowledge: By successfully mastering the material, students will learn basic concepts in the field of voltammetry, potentiometry, electrogravimetry, and coulometry, as well as master the principles of spectroscopic devices, measurement, and processing of results.

Skills: The student will be trained to work on instruments encountered in the analytical laboratory.

Competences: The student will be able to independently solve problems from practice from choosing the appropriate analytical method to performing analysis and interpreting the results.</td></tr>
<tr><td>Teaching methodology:</td><td>Oral presentation method
Method of practical work</td></tr>
<tr><td>Assessment methods and grading system[1]:</td><td>
<table>
<tr><th colspan="3">Grading criteria</th></tr>
<tr><th>Criteria</th><th>Maximal score</th><th>Required score</th></tr>
<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>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&H)</th><th>Grade (ECTS)</th></tr>
<tr><td>< 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>
</table>
</td></tr>
<tr><td>Literature[2]:</td><td>Mandatory literature:
1. M. Memić, (2012), Spektroskopske metode analize – odabrana poglavlja-, PMF, Sarajevo;
2. E. Ruždić, (2000), Elektroanalitičke metode,</td></tr>
</table>

[1] 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

[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

	Univerzitetska knjiga, Sarajevo; 3. M. Memić, S. Žero, (2016), Praktikum iz instrumentalnih metoda analize, PMF, Sarajevo. Supplementary literature: 1. M. Memić, J. Huremović, E. Ruždić, (2016), Zbirka zadataka iz instrumentalnih metoda analize, PMF, Sarajevo.