



<b>Course ID:</b> HFH362	<b>Course name: ELECTROCHEMISTRY</b>		
<b>Cycle: FIRST</b>	<b>Year: THIRD</b>	<b>Semester: VI</b>	<b>ECTS credits: 6</b>
<b>Course status: MANDATORY</b>		<b>Total course hours: 90</b> Lectures: 30 Auditory: 15 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>	The objectives of the course are contained in the fact that physical chemistry deals with the physical principles on which chemistry is based. In this course, students will be introduced to the laws of electrochemistry, which are based on the fact that there is an interaction and defined dependence between matter and current.		
<b>Thematic course units:</b>	<ol style="list-style-type: none"><li>1. Introduction, conduction of electric current, non-electrolytes and electrolytes.</li><li>2. Conductivity of electrolytic solutions. Conductometric titrations.</li><li>3. Formation of ions in solution. Electrolyte theories.</li><li>4. Equilibrium properties of aqueous electrolyte solutions.</li><li>5. Kolraush's laws.</li><li>6. Transference numbers and methods of their determination.</li><li>7. Electrolysis, laws of electrolysis, coulometers.</li><li>8. Application of electrolysis in practice.</li><li>9. Electrochemical cells, thermodynamics of electrochemical cells, electromotive force.</li><li>10. Dependence of the electromotive force of the cell on the conditions-concentration and temperature.</li><li>11. Electrodes, electrode potential, pH scale, potentiometric determinations.</li><li>12. Electrode polarization, overvoltage, diffusion layer, polarography.</li><li>13. Standard cells, concentration cells, redox cells.</li><li>14. Chemical power sources - batteries, combustible elements.</li><li>15. Surfaces and their properties, surface tension, capillarity, adsorption</li></ol>		
<b>Learning outcomes:</b>	Knowledge: Acquired knowledge of electrochemistry and electrochemical laws. Skills: Students will be able to use exact electrochemical methods as a basis for understanding the essence of chemical processes. Competences: Application of electrochemical methods in other branches of chemistry.		
<b>Teaching methodology:</b>	Lectures (oral presentation and interactive classes) Auditory exercises		

