



<b>Subject code:</b> GF - 004	<b>Subject name:</b> Geophysics		
<b>Study cycle:</b> I	<b>Year:</b> I	<b>Semester:</b> I	<b>ECTS credits:</b> 2
<b>Status:</b> Optional		<b>Contact hours:</b> 30 Lectures: 15 Exercises: 15	
<b>Assigned professors and assistants:</b>	Teachers and associates selected in the field to which the subject belongs		
<b>Prerequisites:</b>	/		
<b>Subject objectives:</b>	The aim and task subject is to students through lectures, exercises and independent work gradually introduced to the world of physics.		
<b>Teaching units:</b>	<ol style="list-style-type: none"> <li>1. Introduction-The physical size. The system unit.</li> <li>2. Kinematics of translational motion. General information about the mechanical movement. Vectors. The position of the body in space - system of reference.</li> <li>3. Kinematics of translational motion (continued) Vectors of displacement, velocity and acceleration of particles. Smooth equally variable straight-line movement.</li> <li>4. Rotational Kinematics. Circular movement. The angular velocity. Angular acceleration. Tangential and radial component of acceleration.</li> <li>5. The dynamics of translational motion. Inertia, mass and momentum. Newton laws of mechanics. Movement under the influence Constant Force.</li> <li>6. The dynamics of translational motion (continued). Conservation pulses. The movement of the center of mass. Elastic and inelastic collisions.</li> <li>7. Rotational Dynamics. Moment of inertia. Basic Law for Rotational movement. The Law maintaining the torque pulses.</li> <li>8. First test</li> <li>9. Gravity. Kepler's laws. Newtonian law of gravity.</li> <li>10. Gravity (continued). Gravitational field. Gravitational field of the Earth. Moving in a gravitational field. Cosmic speed.</li> <li>11. Mechanical energy and work. Energy, work and power. Kinetic energy. The gravitational potential energy. Conservation of mechanical energy.</li> <li>12. Waves. Genesis and types of waves. Velocity wave propagation. The energy of the waves.</li> <li>13. Electromagnetic waves. Orbital wheel. The characteristics of electromagnetic waves. The laws of reflection and refraction</li> </ol>		



	<p>of electromagnetic waves.</p> <p>14. Magnetic properties of matter. Types of magnetism - Diamagnetism, paramagnetism and ferromagnetism.</p> <p>15. The strength of the magnetic field and the magnetic induction.</p>																											
<b>Learning outcomes:</b>	<p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>the student critically learns the basic physical quantities, as well as the kinematics of translational and rotational motion, and the dynamics of translational and rotational motion;</li> <li>the student identifies all the essential elements related to gravity, mechanical energy and work as well as electromagnetic waves and magnetic properties of matter;</li> </ul> <p><b>Skills:</b></p> <ul style="list-style-type: none"> <li>the student independently performs tasks related to uniform and uniformly changing movements and movements under the action of force;</li> <li>the student independently performs tasks related to the analysis of motion in the gravitational field, velocity of propagation and energy of the wave and the strength of the magnetic field;</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>the student independently interprets the physical quantities and properties of mechanical movements;</li> <li>the student independently determines and causally perceives the main regularities in the course of movement in the gravitational field.</li> </ul>																											
<b>Teaching methods:</b>	Multimedia presentation and discussion (lectures); practical work, educational material analysis and discussion (exercises).																											
<b>Knowledge testing methods with grading structure<sup>1</sup>:</b>	<table border="1"> <thead> <tr> <th></th> <th><i>Maximum Points</i></th> <th><i>Minimum points</i></th> </tr> </thead> <tbody> <tr> <td>Attendance</td> <td>5</td> <td>3</td> </tr> <tr> <td>Participation on lectures</td> <td>5</td> <td>3</td> </tr> <tr> <td>Tests</td> <td>40</td> <td>22</td> </tr> <tr> <td>Seminar paper</td> <td>10</td> <td>6</td> </tr> <tr> <td>Final exam</td> <td>40</td> <td>21</td> </tr> <tr> <td><b>TOTAL</b></td> <td><b>100</b></td> <td><b>55</b></td> </tr> </tbody> </table> <p><b>Assessment:</b></p> <table border="1"> <thead> <tr> <th><i>Grade</i></th> <th><i>ECTS grade</i></th> <th><i>Points scale</i></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>		<i>Maximum Points</i>	<i>Minimum points</i>	Attendance	5	3	Participation on lectures	5	3	Tests	40	22	Seminar paper	10	6	Final exam	40	21	<b>TOTAL</b>	<b>100</b>	<b>55</b>	<i>Grade</i>	<i>ECTS grade</i>	<i>Points scale</i>			
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<sup>1</sup> The structure of points and point criteria 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 in accordance with Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton



	10 (A) excellent 95 - 100
	9 (B) very good 85 - 94
	8 (C) good 75 - 84
	7 (D) satisfactory 66 - 74
	6 (E) sufficient 55 - 64
	5 (F, FX) insufficient 55
<b>Literature<sup>2</sup>:</b>	<p><b>Mandatory:</b></p> <ol style="list-style-type: none"><li>1. Vrcelj A.: Interna skripta iz Mehanike, Odsjek za fiziku, Sarajevo.</li><li>2. Ćindro N.: Elektricitet i Magnetizam, Školska knjiga, Zagreb, 1988.</li><li>3. Dimić, G., Mitrinović, M.: Zbirka zadataka iz fizike C. Građevinska knjiga, Beograd 1991.</li></ol> <p><b>Recommended:</b></p> <ol style="list-style-type: none"><li>1. Sears F. W.: Mehanika, talasno kretanje, toplota, Naučna knjiga, Beograd 1961.</li><li>2. Đurić, Ćulum: Elektricitet i Magnetizam, Naučna knjiga, Beograd 1974.</li></ol>

<sup>2</sup> The Senate of the higher education institution as an institution or a council of the organizational unit of the higher education institution as a public institution determines mandatory and recommended textbooks and manuals, as well as other recommended literature on the basis of which exams are prepared by a special act which is required to be published on its website before the beginning of the academic year in accordance with Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton.