



UNIVERSITY OF SARAJEVO – FACULTY OF SCIENCE
SUBJECT DESCRIPTION

Form SP2

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Subject code: GF-004	Subject name: Geophysics		
Study cycle: I	Year: III	Semester: V	ECTS credits: 6
Status: Elective		Contact hours: 60 Lectures: 30 Practical courses: 30	
Assigned professors and assistants:	Lecturers and assistants selected for the field to which the course belongs		
Prerequisites:	/		
Subject objectives:	The goal and task of the course is that students through lectures, computational exercises and independent work are gradually introduced into the world of physics.		
Teaching units:	1. Introduction; Physical quantities. System of units; 2. Kinematics of translational motion; Mechanical movement. Vectors. Body position in space-reference system; 3. Kinematics of translational motion (continued); displacement, velocity and acceleration of the particle. Even and uniformly changing rectilinear motions; 4. Kinematics of rotational motion; Circular movement. Corner speed. Angular acceleration. Tangential and radial acceleration component; 5. Dynamics of translational motion; Inertia, mass and momentum. Newton's laws of mechanics. Movement under action constant forces; 6. Dynamics of translational motion (continued); The law impulse maintenance. Movement of the center of mass. Elastic and inelastic collisions; 7. Dynamics of rotational movement; Moment of inertia. Basic law of dynamics of rotational motion. The law of conservation momentum; 8. First test; 9. Gravity; Kepler's laws. Newton's law of gravity; 10. Gravity (continued); Gravitational field. Gravitational the field of the Earth. Movement in a gravitational field. Cosmic speed; 11. Mechanical energy and work; Energy, work and strength. Kinetic energy. Gravitational potential energy. The law maintenance of mechanical energy; 12. Waves; Origin and types of waves. Wave propagation		



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	speed. Wave energy; 13. Electromagnetic waves; Oscillatory circuit. Characteristics electromagnetic waves. Laws of reflection and refraction electromagnetic waves; 14. Magnetic properties of matter; Types of magnetism - diamagnetism, paramagnetism and ferromagnetism; 15. Magnetic field strength and magnetic induction;														
Learning outcomes:	Knowledge: • A student critically learns the basic physical quantities as well kinematics of translational and rotational motion, and dynamics of translational and rotational motion; • A student identifies all the essential elements related to gravity, mechanical energy and work as on electromagnetic waves and magnetic properties of matter; Skills: • A student independently performs tasks related to uniform and uniformly changing movements and movements under the action of force; • A student independently performs tasks related to analysis gravitational field motion, propagation velocity and wave energy and magnetic field strength; Competencies: • A student independently interprets physical quantities and characteristics mechanical movements; • A student independently determines and causally perceives the main ones regularities in the course of motion in gravitational field.														
Teaching methods:	Multimedia presentation and conversation (lecture); research independent work of students through the development of tasks and joint analysis (practical courses).														
Knowledge testing methods with grading structure¹:	<table> <tr> <th></th><th><i>Points</i></th></tr> <tr> <td>Attendance</td><td>5</td></tr> <tr> <td>Participation on lectures</td><td>5</td></tr> <tr> <td>Test</td><td>40</td></tr> <tr> <td>Seminar paper</td><td>10</td></tr> <tr> <td>Final exam</td><td>40</td></tr> <tr> <td>TOTAL</td><td>100</td></tr> </table>		<i>Points</i>	Attendance	5	Participation on lectures	5	Test	40	Seminar paper	10	Final exam	40	TOTAL	100
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¹ 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



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	Assessment: <table><tr><td><i>Grade</i></td><td><i>ECTS grade</i></td><td><i>Points scale</i></td></tr><tr><td>10</td><td>(A) excellent</td><td>95 - 100</td></tr><tr><td>9</td><td>(B) very good</td><td>85 - 94</td></tr><tr><td>8</td><td>(C) good</td><td>75 - 84</td></tr><tr><td>7</td><td>(D) satisfactory</td><td>66 - 74</td></tr><tr><td>6</td><td>(E) sufficient</td><td>55 - 64</td></tr><tr><td>5</td><td>(F, FX) insufficient</td><td>55</td></tr></table>	<i>Grade</i>	<i>ECTS grade</i>	<i>Points scale</i>	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
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5	(F, FX) insufficient	55																				
Literature²:	Mandatory: 1. Aleksandar Vrcelj: Interna skripta iz Mehanike, Odsjek za fiziku, Sarajevo. 2. Nikola Cindro: Elektricitet i magnetizam, Školska knjiga, Zagreb, 1988. 3. G. Dimić, M. Mitrinović: Zbirka zadataka iz fizike C, Građevinska knjiga, Beograd 1991. Recommended: 1. F. W. Sears: Mehanika, talasno kretanje, toplota, Naučna knjiga, Beograd 1961. 2. Đurić i Ž. Čulum: Elektricitet i magnetizam, Naučna knjiga, Beograd, 1974.																					

² 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.