



UNIVERSITY OF SARAJEVO – FACULTY OF SCIENCE
DEPARTMENT OF GEOGRAPHY

Form SP2

Page 1 of 3

Subject code: FG-107.8-4	Subject name: Cartography with Topography		
Study cycle: I	Year: I	Semester: II	ECTS credits: 6
Status: <i>Mandatory</i>		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:		– Acquiring knowledge about the composition (elements) of geographic maps: mathematical, geographic, supplementary – Acquiring knowledge about the shape of the Earth and the issues of cartographic design, and the characteristics of cartographic projections – Understanding the coordinate systems of maps and practical applications – Developing skills in map creation (designing) and calculating mathematical elements of maps (scale, projections, coordinates) – Developing skills in interpreting topographic and geographic maps and their applications in scientific research and spatial practice – Understanding the metric properties of a map and applying cartometry – Explaining topographic and geographic orientation, measurement methods, data collection, and mapping	
Teaching units:		1. Cartography and Topography: Development, Subject, Classification, and Tasks 2. Geographic and Topographic Maps: Terminological and Developmental Definition, Classification and Types, Key Characteristics 3. Composition (Elements) of the Map: Mathematical, Geographic, Supplementary 4. Map Scale: Concept, Classification and Types, Applicative Significance 5. Control Markers on the Map: Rectangular and Astronomical Coordinates 6. Cartographic Design and Projections: Concept, Characteristics, Classification and Types of Projections (Azimuthal, Cylindrical, Conical, Alternative)	



	7. TEST 1 8. Cartographic Representation of Geographic and Topographic Objects 9. Interpretation and Analysis of Relief from Topographic Maps 10. Geographic Names on the Map and Toponymy 11. Cartometry: Lengths, Areas, Angles (Horizontal, Vertical) 12. Reconstruction of Relief from the Map: Topographic Profiles 13. Topographic Measurements in the Field and Mapping 14. Thematic and Satellite Maps, and Earth Models (Globes) 15. TEST 2
Learning outcomes:	Knowledge: Knowledge of terrain elements and map composition. The complexity of cartographic design and projections. Interpretation of relief, scales, and the coordinate system of topographic maps. Measurements, orientation, cartometry, and the applicability of maps as fundamental geographic knowledge. Skills: Understanding the geographic, mathematical, and technical nature of maps. Creation and interpretation of projections and map scales. Understanding coordinate systems, calculating coordinates, and determining absolute location. Interpretation of landscape topography from maps. Measurements and calculations on maps. Field measurements, orientation, and the basics of cartography. Practical use of topographic maps. Competencies: Construction, calculation, and interpretation of mathematical elements of maps. Analysis of cartographic content and potential practical applications of maps. Identification of parameters and forms of relief and assessment of the terrain's tactical suitability. Application of topographic-cartometric methods (orientation, measurements, calculations, interpretations) in understanding the topographic characteristics of locations. Practical use and exploitation of cartographic-topographic data, particularly in geography-oriented applied research (spatial planning, tourism, travel, etc.). Easier navigation and better understanding of space and its topographic predispositions, which is fundamental for assessing its suitability for various purposes.
Teaching methods:	Multimedia lectures. Interactive method, dialogical method, oral presentation method, practical work, text-based method,



	audio-visual method, demonstration method, written and graphic work method, individual work, group work, pair work.																					
Knowledge testing methods with grading structure¹:	Engagement: 20, Tests: 40x2 (80), Total: 100 points. <i>Engagement - Attendance: 5, Participation: 5, Written work: 10</i> Test 1, 2: 40, 22 (55%) / Integrated (T1, T2) 80, 44 (55%) 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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Literature²:	<i>Campbell, J.E., Shin, M. (2012): "Geographic Information System Basics", University of Carolina, Los Angeles</i> <i>Cartography (2021), Department of Remote Sensing and GIS, School of Earth and Environmental Science, Uttarakhand Open University, Haldwani</i> <i>Izmirlić, A. (1999): Vojna topografija, Federalno ministarstvo odbrane, Sarajevo</i> <i>Kennedy, M. (2000): "Understanding Map Projections", Environmental Systems Research Institute, New York</i> <i>Maps & Cartography, Geospatial Resources & Map Collection, Ball State University Libraries, USA</i> <i>Pavišić, N. (1976): "Osnovi kartografije", Obod, Cetinje</i> <i>Snyder, J.P. (1987): "Map Projections- A Working Manual", The U.S. Department of The Interior (DOI), Washington</i> <i>Stowe, B. (2023): Topography, University of Wyoming, USA</i> <i>Šobić, D. (1955): "Matematička kartografija", Geografski institut Jugoslovenske narodne armije, Beograd</i> <i>Topographic Map Symbols (2016), USGG, Department of the Interior, Geological Survey, USA</i> <i>Topographic Maps and Contours (2016), Academic Resource Centre, The ARC, USA</i> <i>Zbirka kartografskih znakova mjerila 1:500 do 1:25.000 (2011), Državna geodetska uprava, Zagreb</i> <i>Articles, Studies, Projects, and Presentations</i>																					

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

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.