



Subject code: ZŽS-121		Subject name: Geospatial databases and digital environmental mapping	
Study cycle: III	Year: I	Semester: I	ECTS credits: 6
Status: Mandatory		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:		- Familiarization and acquisition of students' knowledge about the basic principles of geospatial database development - Familiarization and acquisition of students' knowledge about the basics of designing and applying geospatial databases in the field of environmental management	
Teaching units:		1. Introductory considerations of geospatial databases 2. Database management systems 3. Conventional database models 4. Basics of object databases 5. Designing geospatial database models 6. Implementation of models and realization of applications for geospatial databases 7. Quality control procedures 8. Spatial queries - buffer zones 9. Interrogative languages 10. Client-server architecture 11. Basic principles of distributed geospatial databases 12. Development of web technologies for the distribution of geospatial data 13. Metadata 14. Infrastructure of geospatial databases and integration 15. Manipulation of geospatial data	
Learning outcomes:		Knowledge: - The student labels and explains geospatial databases - The student describes database management systems Skills: - The student creates databases of georeferenced data - The student develops new geospatial databases Competencies: - The student performs spatial analysis and digital mapping of the environment - The student performs geovisualization of the spatial	



UNIVERSITY OF SARAJEVO – FACULTY OF SCIENCE
SUBJECT DESCRIPTION

Form SP2

Page 2 of 3

	contents of the environment in a GIS environment		
Teaching methods:	Theoretical lectures and practical exercises of students using various multimedia tools and application software.		
Knowledge testing methods with grading structure ¹ :		Maximum Points	Minimum points
	Oral discourses	25	14
	Project tasks	25	14
	Final exam (Paper work)	50	27
	TOTAL	100	55
	Assessment:		
	Grade	ECTS grade	Points scale
	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	
Literature ² :	Mandatory:		
	1. Longley P., Maguire D.J., Goodchild M.F., Rhind, D.W. (Eds) 1999: Geographical Information Systems: Principles and Applications (2 Volumes), 2nd Edition, John Wiley & Sons, New York ; Chichester.		
	2. Burrough P.A. and McDonnell R.A., 1998: Principi geografskih informacionih sistema, Građevinski fakultet Univerziteta u Beogradu – prevod sa engleskog jezika		
	3. Droj, G., 2012. GIS and remote sensing in environmental management. J Environ Prot Ecol, 13(1), p.361.		
	Recommended:		
	1. Lovett, A., 2014. GIS and environmental management. In Environmental science for environmental management (pp. 267-285). Routledge.		
	2. Bunch, M.J., Kumaran, T.V. and Joseph, R., 2012. Using Geographic Information Systems (GIS) for spatial planning and environmental management in India: critical considerations. International Journal of Applied Science and Technology, 2(2).		

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.



UNIVERSITY OF SARAJEVO – FACULTY OF SCIENCE
SUBJECT DESCRIPTION

Form SP2

Page 3 of 3

3. Fedra, K., 1999. Urban environmental management: monitoring, GIS, and modeling. Computers, environment and urban systems, 23(6), pp.443-457.
4. Xie, H., Yao, G. and Liu, G., 2015. Spatial evaluation of the ecological importance based on GIS for environmental management: A case study in Xingguo county of China. Ecological indicators, 51, pp.3-12.