



UNIVERSITY OF SARAJEVO – FACULTY OF SCIENCE
SUBJECT DESCRIPTION

Form SP2

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Subject code: ZŽS-120	Subject name: Applied Geospatial Modeling		
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:	- Familiarizing and acquiring knowledge of contemporary trends in geospatial content modeling using GIS - Introducing and acquiring knowledge of students with the possibilities of applying multicriteria GIS analyses in modeling geospatial content		
Teaching units:	1. Spatial data management, analysis, and modeling in GIS 2. Contemporary trends in modeling geospatial content - application and contribution of GIS 3. Fundamental components of spatial analysis 4. General aspects of data collection and modeling using entities 5. Error propagation through numerical modeling 6. GIS modeling based on multicriteria analysis 7. Geospatial modeling of geological phenomena and processes 8. Geospatial modeling of climate phenomena and processes 9. Geospatial modeling of hydrological phenomena and processes 10. Geospatial modeling of soil cover 11. Geospatial modeling of vegetation cover 12. Geospatial modeling of environmental elements 13. Geospatial modeling for industrial spatial facilities construction needs 14. Geospatial modeling of transportation systems 15. Designing geodatabases: case studies in GIS data modeling		
Learning outcomes:	Knowledge: • The student describes the process of geospatial modeling • The student describes the possibilities of applying geospatial technologies in modeling spatial content Skills:		



	• The student applies spatial-analytical methods in the process of geospatial modeling Competencies: • The student predicts and suggests the most optimal software tools for resolving identified spatial conflicts • The student proposes optimal locations for locating geospatial features																																							
Teaching methods:	Theoretical lectures and practical exercises for students using various multimedia resources and application software.																																							
Knowledge testing methods with grading structure¹:	<table><tr><td></td><td colspan="2"><i>Points</i></td></tr><tr><td>Oral discourses</td><td>25</td><td>14</td></tr><tr><td>Project tasks</td><td>25</td><td>14</td></tr><tr><td>Tests</td><td>50</td><td>27</td></tr><tr><td>Final exam (written work)</td><td></td><td></td></tr><tr><td colspan="2">TOTAL</td><td>100 55</td></tr></table> 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>Points</i>		Oral discourses	25	14	Project tasks	25	14	Tests	50	27	Final exam (written work)			TOTAL		100 55	<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:	Mandatory: 1. Burrough, P. A., McDonnel, R. A. (2006): Principi geoinformacionih Sistema–drugo izdanje. Oxford University Press. 2. Đug S., Drešković, N., Odžak, S. (2015) Daljinska istraživanja–principi i primjena u prirodnim naukama. Univerzitetski udžbenik. Univerzitet u Sarajevu. Sarajevo. 3. Goodchild, M.F., 2005. GIS and modeling overview. GIS, spatial analysis, and modeling. ESRI Press, Redlands 4. Reddy, G.O., 2018. Spatial data management, analysis, and modeling in GIS: principles and applications. Geospatial																																							

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.



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Technologies in Land Resources Mapping, Monitoring and Management, pp.127-142.

Recommended:

1. Fedra, K., 1993. GIS and environmental modeling. Environmental modeling with GIS, pp.35-50.
2. Murray, A.T., 2010. Advances in location modeling: GIS linkages and contributions. Journal of geographical systems, 12, pp.335-354.